Joint Simulation System (JSIMS) Functional Requirements Document (FRD)

A User's Perspective on the Future

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Joint Simulation System (JSIMS)
Functional Requirements Document (FRD)

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Executive Summary

The purpose of this document is to define JSIMS functional requirements in a level of detail that is meaningful to both the JSIMS developmental community and the expected future users of the system. The Functional Requirements Document (FRD) is a natural outgrowth of initial efforts undertaken by the Joint Warfighting Center (JWFC) to clarify and expand JSIMS requirements beyond that specified in the February 96 JSIMS Operational Requirements Document. Although the FRD describes the full *range* of functional requirements that JSIMS should meet at full operational capability, it is a *baseline* for defining JSIMS requirements, not a final product. Given the long development time for JSIMS and the expectation of inevitable changes to the sources of requirements, it is clear that defining functional requirements will be an iterative process that future users of the system—CINCs, Services, and DOD Agencies—will have multiple opportunities to influence.

The FRD is divided into four sections. Section I provides a general description of the system, its objectives and broad capabilities; identifies primary policy constraints; ties JSIMS directly to the Joint Training System and Joint Vision 2010; and briefly defines the relationship between JSIMS and other core modeling and planning systems now in use or under development. Section II is the core of the FRD; it describes the analytical effort and provides a statement of functional requirements distilled from a variety of sources. Section III identifies a small set of operating requirements that are linked to the input received from future JSIMS users. Section IV amplifies the preceding exposition of requirements through an illustrative example, describing how JSIMS could be used to support a multi-CINC joint exercise. Appendices comprise the last section of the report. Appendix D is particularly important in that it is a comprehensive collection of data, compiled in a variety of formats, that directly supports the analysis reported in Section II.

As stated above, Section II is the core of this report. Information for analysis of functional requirements flows from four primary sources. First, existing studies and historical records of modeling and simulation systems contribute to a full understanding of long-standing deficiencies that compromise the quality and utility of current systems. Second, review of available Service, CINC, and joint training publications reveals broad requirements for JSIMS in terms of the definition of the training environment and the macro-level tasks that JSIMS is to support. Third, an in-depth study of the Universal Joint Task List (UJTL) (version 2.1), cross-referenced against input received from users, sheds further light on the environmental conditions that must be represented in JSIMS and leads to a partitioning of the UJTL in terms of the significance and relevance of the tasks as potential training objectives in a JSIMS-supported exercise or event.

However, the core of the collection and analytical process is a concerted effort to obtain statements of requirements directly from CINCs, Services, and DOD agencies, through the development of detailed descriptions of "use cases." This process centered on the use of a worksheet designed to collect 29 categories of information. Some worksheet input

was received by correspondence, but analysts obtained the highest quality and volume of information through the conduct of workshops. Over a 3 month period, a total of 9 workshops were conducted and 89 use cases were identified and described. Analysis of the use case worksheets led to a logical sorting of the 89 use cases into 7 umbrella categories. These "consolidated use cases" are enumerated below in order of significance (based on user input), validated by JSIMS Executive Agents and the Joint Warfighting Center on 18 September 1996.

Use Case One:	CINC Staff, JTF Command/Staff, JTF Component and Agency Training (also referred to as joint training)
Use Case Two:	Service and Agency Training
Use Case Three:	Planning and Analysis
Use Case Four:	Crew/Team Rehearsal
Use Case Five:	Professional Military Education
Use Case Six:	Senior Officer Education
Use Case Seven:	Doctrine Development

The collection and analysis process distilled an extensive set of JSIMS functional requirements that can be divided into three main categories. First, JSIMS must address pre-existing requirements related to existing deficiencies within the modeling and simulation (M&S) community. This set of requirements includes: scalability; enhanced realism within the training environment and transparency of the simulation; incremental automation of manpower-intensive control functions through the broader use of computer-generated forces; and capability to evolve and adapt to future requirements and emerging technology. In addition, JSIMS must provide a comprehensive set of tools to enable the trainer or controller to tailor the system to meet specific objectives, including tools for planning, scenario preparation, database preparation/initialization, communications architecture, technical control, exercise control, evaluation, and role player interfaces.

The second category of requirements comprises a set of capabilities and functions that are common to all or most of the use cases. The 12 common threads so identified concern: type of scenario; size and number of theaters; phases of operations; number of sides; user location and distributed mode; visualization; C4I interfaces; physical, civil, and military conditions within the synthetic environment; security classification and releasability; simulation time; system operator; and the after action review function.

The third category is the set of requirements that are unique to the seven consolidated use cases. This category includes special requirements regarding level of resolution/aggregation, quality of fidelity, complexity of behavioral representation, visualization, "excursion" capability, and the need for multiple, parallel simulations.

The FRD's compilation of functional requirements concludes with a projection of future (long-range) requirements that could emerge in concert with the maturation and implementation of Joint Vision 2010.

Acknowledgments

This Functional Requirements Document is the result of a concerted effort by a large group of organizations and individuals. The product is intended to evolve, especially with the reader's active participation.

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Section I- Introduction

A. *Purpose/Scope of JSIMS Functional Requirements Document.*

1. Purpose.

This FRD defines JSIMS functional requirements at a level of detail meaningful to both the JSIMS developmental community and the expected future users of the system. The FRD is a natural outgrowth of initial efforts undertaken by the Joint Warfighting Center (JWFC) to define JSIMS requirements. The JSIMS Operational Requirements Document (ORD) approved in February 1996 established the general framework for defining the capabilities and characteristics required for JSIMS. To define requirements further, the JWFC conducted a substantial analysis of the capabilities of the major modeling and simulation systems now in use (or soon to be in use) within the joint community. These systems included the Joint Training Confederation (JTC), Joint Conflict Model (JCM), Joint Theater Level Simulation (JTLS), Joint Tactical Simulation (JTS), and the Joint Conflict and Tactical Simulation (JCATS). This early work also (1) identified the Universal Joint Task List (UJTL), CINC joint training plans (JTP), and Service tactical task lists (TTL) as core sources of requirements for JSIMS and (2) enumerated a variety of potential users of JSIMS. In recognition of the scope and complexity of research and analysis needed to complete these tasks, the decision was taken to develop this FRD. As shown in Figure 1, the FRD feeds the Acquisition Program Baseline (APB), the JSIMS Concept of Operations (CONOPS), and later versions of the JSIMS ORD that may be required.
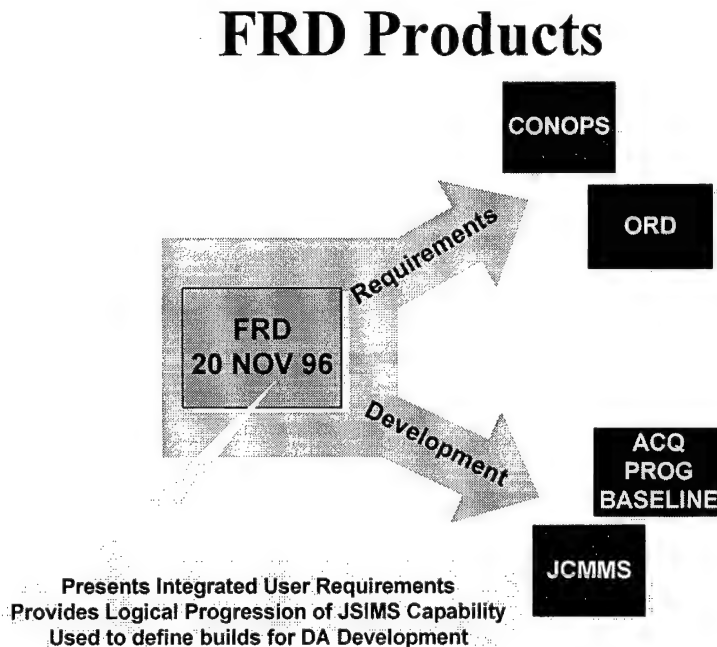
FRD Products

Figure 1: FRD Products

2. Scope.

This document describes the range of functional (user) requirements that the Joint Simulation System (JSIMS) must meet at full operational capability (FY03); provides an illustrative example of how JSIMS will be used for specific purposes; and provides a supporting package of tabular, statistical, and graphical data. *Except where explicitly indicated, JSIMS requirements defined in this document are unconstrained with respect to cost, technical feasibility, or time.* This document is a baseline for defining JSIMS functional requirements, not a definitive product.

3. Iterative Process.

Given the long development time for JSIMS, the task of defining functional requirements must be an iterative process. Additional research and analytical tasks have already been defined for near-term work to refine requirements further. It is anticipated that each JSIMS "build" or version will include an updated FRD. Accordingly, all users—Services, CINCs, and DOD Agencies—will have multiple opportunities to influence the process, as shown in Figure 2, over the course of JSIMS development.
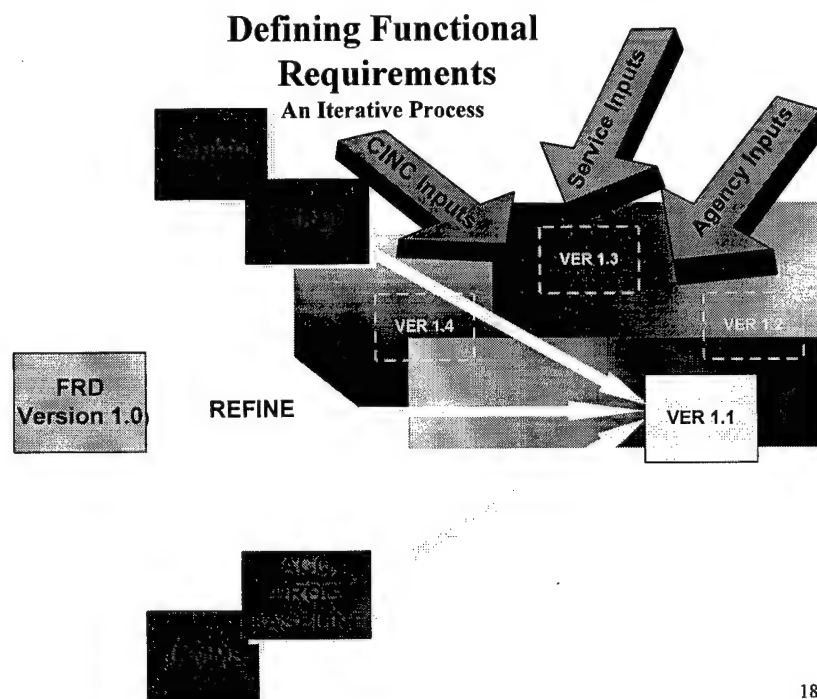
Figure 2: Defining Functional Requirements

B. JSIMS Mission.

Changing world conditions and U.S. force levels, structure, and capability demand improvement in our ability to react globally. U.S. forces must be able to perform missions across the full range of military operations, using appropriate military capabilities organized in joint and combined forces. All aspects of preparing for future military operations can be improved through the use of modeling and simulation. The mission of the JSIMS is to provide readily available, operationally valid, computer-simulated environments for use by the CINCs, their components, other joint organizations, and the Services to jointly educate, train, develop doctrine and tactics, formulate and assess operational plans, assess warfighting situations, define operational requirements, and provide operational input to the acquisition process.[1]

C. JSIMS Objectives.

JSIMS is intended to:[2]

1. Integrate the range of missions of the U.S. Armed Forces into a common framework that includes live, virtual, and constructive modeling and simulation and is eventually capable of addressing training, testing, and analytical needs.

2. Provide a training environment at the operational level of war that will also accommodate requirements at the strategic and tactical levels including space, transportation, and intelligence. This environment should also be capable of training down to the individual unit level.

3. Establish a common simulation support structure that enables sharing of simulation resources, processes, and results among users.

4. Enable simulation users to create or access a simulation environment that supports their requirements.

5. Enable joint simulation users to interact freely with elements of their command structure, supporting or supported organizations, and other simulation centers or users.

6. Reduce overhead and operating costs for simulation-assisted training by two-thirds.

7. Increase effectiveness and overall utility of modeling and simulations (M&S) in support of training and education by resolving or ameliorating the set of deficiencies that now exist within the family of (primarily) Service-developed M&S systems and

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[1] Mission Need Statement for Joint Simulation System, 22 July 1994.

[2] Ibid.

by expanding M&S capabilities to cover the full range of military operations, such as military operations in urban terrain (MOUT), information warfare, military operations other than war (MOOTW), etc.

D. *JSIMS Overview and General Capabilities.*

1. JSIMS is the 21st Century simulation system that will help meet training requirements of CINCs, components, joint task force (JTF) commanders and staffs, and Services. JSIMS will also support mission planning and analysis, mission rehearsal, doctrine development, and education.

2. The development of JSIMS capabilities is necessarily phased. As specified in the ORD, at Initial Operational Capability (IOC) in FY99, JSIMS will match or exceed the capabilities programmed for the FY99 Joint Training Confederation (JTC), focusing on support for training at the operational and strategic-theater levels of war for unified combatant command staffs, JTF command/staff, and JTF components in a training environment, as shown in Figure 3. At Full Operational Capability (FOC) in FY03, JSIMS is required to present a complete, accredited, interactive Joint Synthetic Battlespace (JSB), spanning strategic-national to tactical levels, representing all warfare domains, suitable for supporting training and preparation for all phases of operations (mobilization, deployment, employment, sustainment, redeployment) and all forms of MOOTW. Due to common operational threads and the degree of commonality in requirements, JSIMS will, at IOC, have a basic capability to support education, planning, analysis, doctrine development, etc. At FOC, JSIMS will have evolved to fully support professional military education, mission planning, mission rehearsal, and doctrinal development. At maturity, JSIMS will allow globally dispersed, to include deployed, U.S. forces, R&D test facilities and ranges, defense educational institutions, reserve components, U.S. government agencies, allies, and multinational forces to participate simultaneously and seamlessly in multiechelon, simulation-assisted training events.

JSIMS Training Environment
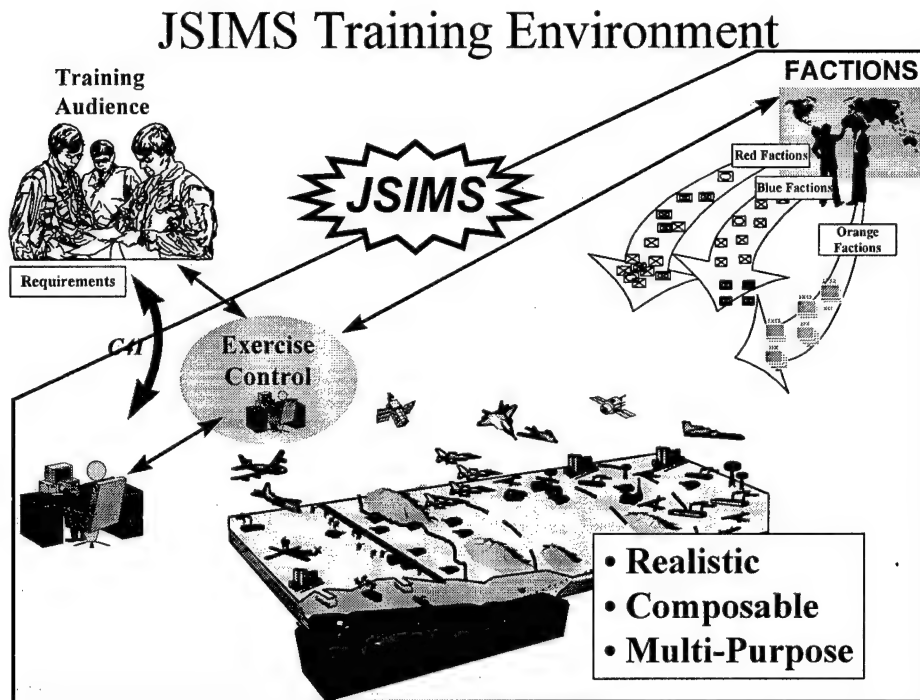
Figure 3: JSIMS Training Environment

3. The JSIMS Mission Need Statement specifically prescribes the following general capabilities for JSIMS.

  a. Incorporation of simulations across the full range of military operations including land, sea, air, space, and special operations with associated functionalities such as logistics, intelligence, medical, engineering, communications, and electronic warfare. Simulations also include geophysical, meteorological, oceanographic, and environmental factors.

  b. Incorporation of simulation of social, economic, and political factors, which affect missions across the entire range of military operations.

  c. Tailored displays of simulation results on C4I (command, control, communications, computers, and intelligence) systems or their emulations for training and exercises, or on computer workstations for analysis.

  d. Distributed and remote computer processing for a user characterized by interoperable elements located at many geographical sites.

  e. Flexibility to selectively accommodate different functional applications and levels of detail within an application (e.g., tactical, operational, and strategic levels of warfare for training and exercise).

f. Linkage of live, constructive, and simulated forces to form an environment which stimulates a user's C4I systems.

g. Accelerated development of data/knowledge bases and the creation of semi-autonomous forces to reduce exercise overhead and allow for crisis rehearsals.

4. JSIMS development will be supported by officially designated Executive Agents (EA) and Development Agents (DAs) from the Army, Air Force, and Navy for each warfare domain (land, air/space, and maritime). In addition, EAs from the Defense Intelligence Agency (DIA), Defense Information Systems Agency (DISA), and Special Operations Command (SOCOM) represent, respectively, the functional areas of intelligence/opposing forces, C4, and special operations. JSIMS representations of the physical environment (terrain, atmospherics, and oceanographics) will be provided by the National Imagery and Mapping Agency (NIMA), Air Force, and Oceanographer of the Navy.

E. DOD Policy Constraints.[3]

1. JSIMS must comply with DOD standardization and interoperability policies for modeling and simulation, including: the DOD Technical Reference Model (TRM) part of the Technical Architecture Framework for Information Management (TAFIM); the Defense Modeling and Simulation Office (DMSO) High Level Architecture Management Plan; Modeling and Simulation Resource Repository; DMSO Conceptual Models of the Mission Space Management Plan; and the DOD Modeling and Simulation Master Plan. These policies include the directive that the JSIMS core infrastructure and constituent components meet requirements for verification, validation, and accreditation (VV&A).

2. JSIMS must adhere to DOD Corporate Information Management (CIM) guidance for managing automated information systems. Reliability and maintainability must be considered early in system design to minimize support costs.

3. Because elements of JSIMS must interface with C4I systems, functional applications involving replications of activities which prompt decision-making must be through C4I systems used in actual operations, taking advantage of the Modular Reconfigurable C4I Interface. JSIMS design must accommodate DOD Intelligence Information Systems (DODIIS) and adhere to other emerging C4I standards such as those advocated in C4I For the Warrior.

4. JSIMS must comply with DOD security requirements and take advantage of existing programs. JSIMS must accommodate multilevel automated systems security.

5. JSIMS must comply with M&S International Release requirements.

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[3] Mission Need Statement for Joint Simulation System, 22 July 1994.

6. Elements of JSIMS requiring terrain data must be compatible with NIMA products. [As the Modeling and Simulation (M&S) Executive Agent for terrain, NIMA will provide terrain database standards or will establish new standards.]

7. JSIMS design must anticipate decreased manpower availability. Therefore, design objectives include more efficient automated simulation support functions such as exercise design, database building, and simulation control.

F. JSIMS and the Joint Training System.

1. The functional requirements established in this document meet criteria established by Joint Training Policy, 21 November 1994, regarding M&S support to joint training. In accordance with that criteria, JSIMS-assisted joint training must:[4]

- be based on commander-validated requirements;

- have the capability to train specific training audiences to perform each task to the conditions and standards set by the commander;

- be appropriately scaled, based on clear identification of primary training audiences for each event;

- minimize overhead requirements; and

- be cost-effective in training tasks to standards.

2. With respect to the Joint Training System, JSIMS will enhance the ability of commanders to adhere more fully to the five tenets of joint training. In particular, JSIMS will:[5]

- expand capability to "train the way you fight" by adding realism to the training environment and eliminating or reducing some of the artificial features of today's modeling and simulation tools;

- enhance the role of the "commander as the primary trainer" by providing more tools (1) to design training events that address unique training requirements and (2) to control training events more effectively and flexibly; and

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[4] CJCSI 3500.01, Joint Training Policy for the Armed Forces of the United States, 21 November 1994.
[5] Ibid. Also, CJCSM 3500.03, Joint Training Manual for the Armed Forces of the United States, 1 June 1996.

- help "centralize planning and decentralize execution" by tailoring the simulation-assisted component of joint training to each echelon of the training audience.

JSIMS will support all four phases of the joint training cycle. The JSIMS after action review functionality will be especially useful to assist commanders in the conduct of command training evaluations and assessments.

JSIMS will increase the training resources available to commanders for joint training worldwide, reduce the time required to prepare for training exercises, and expand the kinds and numbers of tasks that can be trained using simulation. In this sense, JSIMS should also contribute to more effective use of other training resources.

3. Under the Joint Training System, joint training objectives are evolving faster than the existing M&S infrastructure. JSIMS is the means by which M&S capabilities keep pace with the increasingly complex training environment facing joint and service commanders in the post Cold-War world.

G. JSIMS and Joint Vision 2010 (JV 2010).[6]

1. Along with the National Military Strategy, JV 2010 serves as the front-end guidance for defense efforts to evolve future joint warfighting capabilities. JV 2010 strategic guidance provides a focus and conceptual framework for the Services, CINCs, Joint Staff, and Defense Agencies to develop the processes for evolving 2010 capabilities and for transforming those capabilities into specific requirements, investment strategies, and force structures. As JV 2010 is further developed, it will provide common direction, benchmarks, and measures of merit for Service, CINC, and Defense Agency visions. JV 2010 will exercise its influence through all of the major elements of the DOD planning system, including the Joint Warfighting Capabilities Assessment (JWCA), Joint Strategic Planning System (JSPS), Joint Strategy Review (JSR), and the Planning, Programming, and Budgeting System (PPBS).[7]

2. The (Draft) Implementation Master Plan for JV 2010 describes a cyclical, three-phased process: concept development, assessment, and integration.[8] Once fielded, JSIMS will be the primary M&S resource used to support implementation during all three phases.

a. The first concept development phase for JV 2010 is already well underway. It is largely an intellectual process involving the identification and refinement of enabling concepts that expand the core concepts of the Vision.

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[6] Joint Vision 2010. America's Military: Preparing for Tomorrow, May 1996.

[7] Joint Warfighting Center, Joint Vision 2010 Implementation Master Plan (Draft), 1 October 1996.

[8] Ibid.

b. The assessment phase will use a variety of tools — primarily events conducted by various organizations — to examine alternative ideas, organizational designs, systems, and materiel to determine how to achieve JV 2010 operational capabilities. Wargames, senior-leader seminars, modeling, simulations, joint exercises, and real-world operations under the control of the Joint Staff, Services, CINCs, and Defense Agencies will comprise key elements within the assessment process. As the joint community's most advanced and comprehensive simulation system, JSIMS will be fielded in time to support many of the events described above.

c. JV 2010 integration includes providing senior leadership with the lessons learned from the assessment process and with required capabilities gleaned from tests, evaluations, and feedback from the joint community. Senior leaders will use these inputs to make decisions relative to change in the U.S. Armed Forces. Over time, JV 2010 implementation will substantially influence changes in joint doctrine, training, leader development, people, materiel, and organizations. Relative to training and doctrine, JV 2010 will introduce major changes to UJTL, CINC JMETL, Service TTL, CTI, and CINC and Service training plans, all of which comprise the primary inputs for determining JSIMS requirements. JSIMS will both support this evolutionary process and be affected by it as new requirements emerge. To keep pace with advances in warfighting capabilities, JSIMS must include an inherent capability to grow, adapt, and evolve *quickly*.

d. As the assessment and integration phases feed future cycles of concept development, JSIMS will provide a useful means to refine and assess new concepts and their constituent elements.

3. Initial enabling concepts and warfighting capability objectives for JV 2010 are now being developed, along with their implications for future operations and training.[9] Section II, paragraph C, forecasts how these implications could affect future JSIMS requirements.

H. Relationship of JSIMS to Other Training, Planning, and Analytical M&S Systems.

JSIMS is being planned and developed in concert with a number of other important M&S systems being developed concurrently. Understanding the relationship of JSIMS to these other systems is essential to achieve maximum benefits in terms of tradeoffs, common elements, sharing, and software reuse. Functional requirements identified for JSIMS also have a bearing on the capabilities and characteristics of related systems.

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[9] Joint Warfighting Center, Concept for Future Operations (Initial Draft), 23 September 1996.

1. JSIMS and the Joint Warfare System (JWARS). Although JSIMS is not an analytical system, it must be interoperable with emerging analytical models and systems such as JWARS, since some of the functions that will be performed by JSIMS during joint exercises (e.g., course of action assessment and force on force evaluations) are comparable to operational analysis. Moreover, the level of behavioral complexity required for some JSIMS uses is the same as that required for JWARS; the same technology can be applied to both systems. In addition, JSIMS human-in-the-loop capability, if linked with JWARS, can provide expanded insights and improve the quality of JWARS analysis.

2. JSIMS and the Joint Conceptual Model of the Mission Space (JCMMS). The joint mission space is the set of processes, functions, and tasks relevant to unified action carried out by a joint force in its area of operations. JCMMS will be an implementation-independent formal model of the real-world joint mission space. JCMMS will use joint and service doctrine; support object-oriented analysis and design; and form the basis for verification, validation, and accreditation activities. It will also provide authoritative descriptions of the joint mission space—physical environment, systems and materiel, organization, doctrine, and human characteristics—for development and representation in JSIMS. JCMMS will identify and describe the entities of the joint mission space, including their attributes, relationships, methods, processes, and interactions. To ensure the best use of resources, JCMMS will be jointly developed by the JWARS and JSIMS programs, in coordination with Executive Agents (EAs) and Development Agents (DAs).[10]

3. JSIMS and the Joint After Action Review System (JAARS). JAARS supports the Joint Training System by providing the capability to capture and display data relevant to the UJTL and (UJTL-derived) Joint Mission Essential Task lists, from strategic-national to operational level. JAARS will provide automated data collection, storage, retrieval, and analysis, as well as capabilities for preparation and presentation of briefings in support of joint after action reviews. JSIMS users require virtually the same function to support after action review for JSIMS-assisted events. Accordingly, the AAR function developed for JSIMS (described in detail in Section II) must be closely synchronized, if not merged, with the development of JAARS.

4. JSIMS and Joint Exercise Management Program (JEMP). JEMP provides a framework and suite of computerized tools for more efficient, fully coordinated planning, preparation, and execution of joint exercises. The current JEMP will transition in the future to JEMP III.[11] Since all joint exercises supported by JEMP III will also be supported by JSIMS, the two systems must interact. Interaction is required to facilitate exercise planning and preparation through the manipulation of

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[10] Joint Program Office, JSIMS Technical Requirements Document, 18 July 1996.
[11] Joint Warfighting Center, Concept for Joint Exercise Management Program (JEMP) III (Draft), 21 October 1996.

data maintained by JEMP III and to provide post-exercise feedback with respect to the determination of future exercise requirements.

Section II - Functional Requirements

A. *Methodology for Collection and Analysis of Requirements.*

1. Collection Process.

The methodology for collection and analysis of requirements is depicted in Figure 4 (see page 14).

a. Existing studies and historical records.

Recent studies (such as "Utility of Modeling and Simulation in the Department of Defense: Initial Data Collection" and "Time and Command Operations: A Focus on the Joint Modeling and Simulation Needs for Training and Operations at the Unified Commands," both prepared for the Defense Modeling and Simulation Office) provided broad insights into assessments from the user community regarding means by which improved capabilities for modeling and simulation could provide additional benefits to training, education, and analysis. Historical records describing requirements for simulations developed during the previous 10-15 years also proved to be useful sources for a more complete understanding of the requirements process. In the latter category, review included the Joint Exercise Support System (JESS), the Urban Combat Computer Assisted Training System (UCCATS), the Joint Theater Level Simulation (JTLS), the Extended Air Defense Simulation (EADSIM), Enhanced Naval Warfare Gaming System (ENWGS), the Joint Conflict Model (JCM), the Joint Tactical Simulation (JTS), the Joint Training Confederation (JTC), the Joint Conflict and Tactical Simulation (JCATS), and the Warfighter Simulation (WARSIM). Pursuant to this review, the JWFC Baseline Models Capabilities Matrix was developed to highlight the operational coverage currently provided by the key legacy systems: JTC, JTLS, and JCATS (see Appendix D, Enclosure 14).

b. Limitations of current models.

The literature search also contributed to collection of information regarding the current disparate array of M&S systems in use in DOD today. Broad expectations exist within the user community that JSIMS will alleviate many of these limitations (subject, of course, to cost and technical feasibility).

- Today, no single simulation nor combination of models and simulations provides a complete, all-purpose representation of the joint operational environment. Existing Service-developed simulation systems represent Service warfare areas, but they do not adequately interoperate with each other, particularly with respect to satisfying the training and analytical

needs of unified combatant commanders and joint force commanders. Service-developed combat adjudication models generally are not compatible. Moreover, models that represent support functions, such as logistics, intelligence, and special operations, do not interact with combat models in sufficient resolution and fidelity. The existing set of models also employ differing terrain and force databases, thereby reducing flexibility and reuse, increasing costs and preparation time, and degrading usefulness. Finally, existing simulations do not effectively link the five phases of conflict.

- Existing models do not adequately portray the full range of military operations. For example, space is largely ignored in JTLS, Thunder, TACWAR, and Janus, and only partially represented in EADSIM and ALSP. Similarly, although MOOTW has dominated employment of U.S. Armed Forces since the Gulf War, existing M&S systems do not adequately represent MOOTW scenarios. On a larger scale, social, economic, and political factors affecting missions across the full range of military operations are not adequately modeled to support joint training.

- Simulation-assisted training continues to suffer from artificiality and lack of realism. Users cannot freely interact with each other, nor can they leverage other simulation capabilities through electronic connectivity. Combat simulations are not fully compatible with existing C4I systems, forcing the training audience to use unfamiliar equipment and procedures to participate in the game. In some cases, simulation users are forced to participate at fixed sites away from their normal duty areas. In addition, substantial (visible) personnel augmentation is required to support simulation-assisted training events. For example, current models require personnel to operate nonorganic computer systems and to perform as role players representing the actions of enemy, neutral, and nonparticipating friendly forces. Naturally, the shortfalls in operational representation described above also contribute to lack of realism in that the battlespace is not represented with the necessary fidelity or resolution.

- Existing systems also lack a complete array of the trainer and provider tools required to facilitate efficient planning and execution of training events. For example, no existing system has adequate after action review functionality.

c. Use Case Workshops.

The most comprehensive and important component of the collection process was a concerted effort to obtain statements of requirements directly from CINCs, Services, and DOD agencies. This process focused on the development of

detailed descriptions of "use cases," specific ways or purposes for which an organization plans to use JSIMS. To assemble these use case descriptions, a use case worksheet was designed to collect 29 categories of information pertinent to requirements.

Input from Services and DOD agencies was obtained largely through the conduct of 1- and 2-day workshops, led by a JSIMS core team of JWFC and Joint Program Office representatives, with audiences composed of subject matter experts assembled by Service and agency EAs. Typically, workshops consisted of initial presentations by members of the JSIMS core team to explain the process, followed by guided, step-by-step completion of the use case worksheet for each use case anticipated by the group. Participants also assigned a priority to use cases identified during the workshops and provided additional comments pertinent to JSIMS requirements.

Input from CINCs was obtained primarily by correspondence. In addition, one workshop was conducted with CINC representatives to the 1996 Worldwide Joint Training Conference, and two modified sessions were conducted, one at ACOM by two members of the JSIMS core team and one at SPACECOM by a single member of the core team. At the conclusion of the collection effort, a consolidated workshop was conducted with Service and agency EAs to review, validate, and assign a priority to initial findings. In total, 9 workshops were conducted and 89 use cases were identified and described. Appendix D contains the use case worksheet, instructions, and record of workshops.

d. Service, CINC, and joint training documents.

Parallel with the conduct of workshops and completion of use case worksheets, an independent effort was carried out to collect requirements through a review of official Service, CINC, and joint training documents. This document review included joint training plans from seven CINCs (EUCOM, PACOM, SOUTHCOM, SPACECOM, ACOM, SOCOM, and TRANSCOM), the Universal Joint Task List (v. 2.1, CJSCM 3500.04), the Joint Training Manual, the 1998 Joint Training Master Plan, and other materials.

Functional Requirements Analysis Process
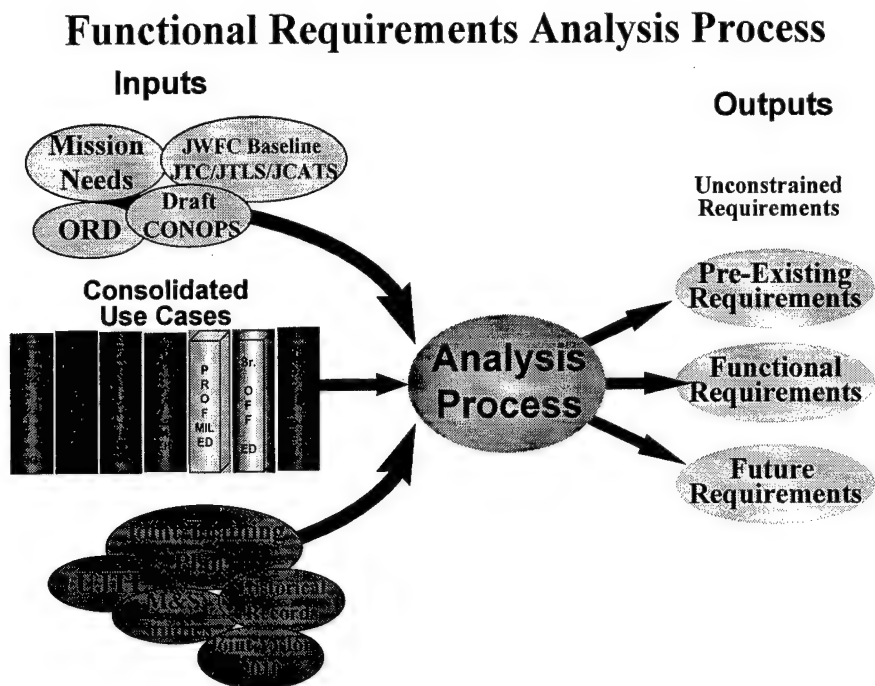
Figure 4: Functional Requirements Analysis Process

2. Limitations.

The effort to collect information for analysis of functional requirements covered many data sources, consumed a great deal of time, and produced a large volume of high-quality data. Nevertheless, owing to a number of factors, the collection process cannot be characterized as 100 percent complete. Several user communities were insufficiently polled, including special operations, logistics, intelligence, and C4. Input received in correspondence from CINCs was also incomplete. Time did not permit canvassing reserve components. Not all CINC joint training plans and Service TTLs were available for review. Finally, more work is needed to fully develop JSIMS requirements in the areas of MOOTW, operations in urban terrain, information warfare, and missile defense. Despite these limitations, *the depth, breadth, and accuracy of information collected are sufficient to establish a baseline and range for JSIMS functional requirements.* As noted earlier, defining the full set of functional requirements will necessarily be an iterative process that should produce a more complete set of detailed user requirements.

3. Analysis.

Analysis of the use cases formed the core of the analytical effort. Analysts employed several methods, including direct comparison of the use cases and statistical techniques to group similar cases and identify common requirements. The analysis led to a logical sorting of the use cases into seven umbrella categories, or consolidated

use cases as shown in Figure 5. Grouping the use cases in this fashion contributed to more meaningful discussion of the data and enabled analysts to assign significance and priority to the requirements that emerged. The consolidated use cases are enumerated below in order of significance, based on user input, and as validated by EAs and the Joint Warfighting Center at the consolidated workshop:

Use Case One: CINC Staff, JTF Command/Staff, JTF Component and Agency Training (also referred to as joint training)
Use Case Two: Service and Agency Training
Use Case Three: Planning and Analysis
Use Case Four: Crew/Team Rehearsal
Use Case Five: Professional Military Education
Use Case Six: Senior Officer Education
Use Case Seven: Doctrine Development

Joint Simulation System

Consolidated Use Cases
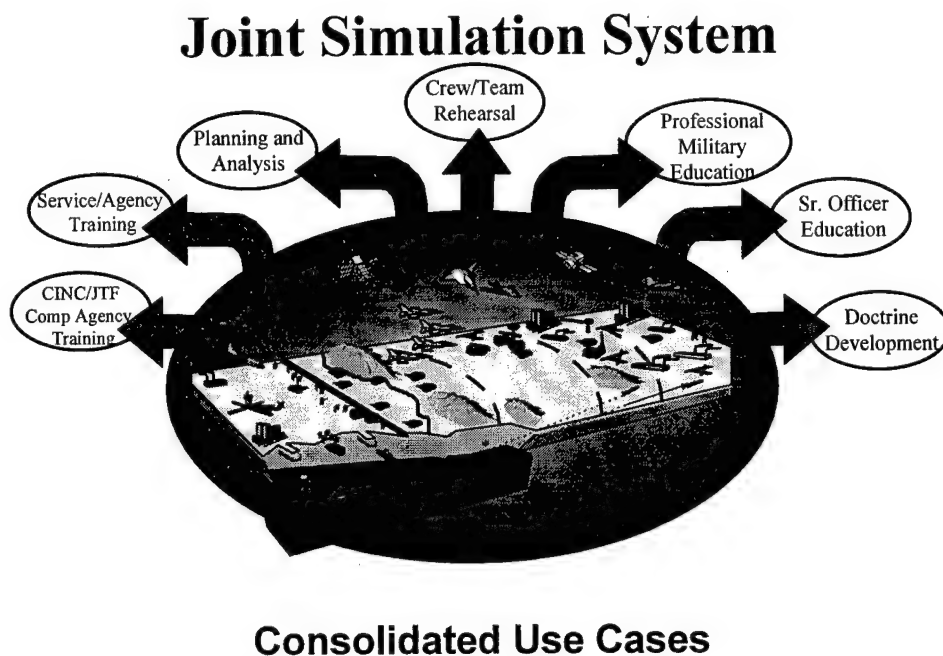
Figure 5: Consolidated Use Cases

Requirements identified during analysis were divided into two categories: requirements common to all or nearly all consolidated use cases and requirements that are unique to each consolidated use case. Simultaneously, results of the use case analysis were cross-checked with inferences drawn from review of joint training plans and other documents. Appendix D contains analytical products (graphs, tables, matrices, statistics, etc.) of this effort. Despite use of consolidated use cases as the primary means to describe and discuss requirements, no requirement has been lost from the individual use cases.

4. Significance of UJTL, JMETL, and Service TTL.

a. The UJTL, plus the CINC JMETLs and Service TTLs derived in concert with the UJTL, are the primary elements of the requirements-based, train-to-task training system mandated for U.S. Armed Forces. This interconnected training system, expressed in terms of tasks, conditions, and measures, provides a common framework and taxonomy for CINCs, Joint Force Commanders (JFCs), and components to identify task-derived training objectives, to define the conditions under which tasks/objectives are to be accomplished, and to describe measures and criteria for evaluating performance. Consequently, the UJTL, JMETLs, and TTLs comprise the most important sources of requirements for JSIMS.

b. Although time and availability of data precluded a complete analysis of UJTL, JMETL, and Service TTLs, sufficient information was available to correlate UJTL tasks with the levels of training audiences, i.e., the use cases. Universal joint tasks are closely related and mutually supportive across the range; separating them individually for analysis is artificial, to a certain degree. However, because of the number of tasks involved and the need to provide focus, UJTL analysis divided the tasks into five categories that are based on two factors: user identification of the tasks as potential training objectives and evaluation of their suitability for training in a computer-assisted exercise. Results of this analysis are depicted in Appendix D, Encl. 6.

c. Two caveats are in order with respect to UJTL, JMETL, and TTL. First, it must always be kept in mind that these task lists, linked further by supporting and enabling tasks, define the tasks, conditions, and measures, which in turn define the training environment that JSIMS must support. Second, these task lists will inevitably change over time, reinforcing the idea that JSIMS functional requirements will have to be revised and updated periodically.

B. Primary Capabilities, Characteristics, and Functions Required for JSIMS.

The collection and analysis process produced a set of primary capabilities, characteristics, and functions that JSIMS must possess to meet functional requirements of the user community. This set of primary capabilities and characteristics can be separated into three broad categories: requirements related to existing deficiencies within the M&S community that must be corrected; requirements that are common to many or all of the consolidated use cases; and requirements that are unique to each of the consolidated use cases. These three categories are discussed below. Note: Numbers in parentheses in Sections IIB and IIC denote requirements. See cross-reference matrix at Appendix D, Enclosure 13.

1. Pre-Existing Functional Requirements Validated During the Collection and Analysis Process.

a. Transparency and Realism (1.1).

JSIMS must support a training environment that approaches actual operational conditions for the training audience. Exercise participants should be able to employ their unmodified standard operating procedures globally and should not be able to distinguish between real and simulated entities (1.1.1). In most cases, training at all levels is inherently more effective when it is performed under conditions that replicate as closely as possible real-world conditions (1.1.3). However, many of the limitations in the existing M&S infrastructure contribute to the lack of realism in the training environment. JSIMS must improve transparency through a number of means:

- creation of an interactive joint synthetic battlespace representing all warfare domains and applicable functionalities at the level of detail required for each user participating in the training event (1.1.2);

- interface with real-world C4I systems (1.1.4);

- real-time interactions based on tailorable scenarios and real-world databases (1.1.3);

- train from real-world duty locations (1.1.5);

- seamless linkages between live, virtual, and other constructive simulations and between users at various echelons (1.1.6);

- incorporation of natural, political, social, and economic influences within the simulation (1.1.7); and

- reduction in visible overhead support for training (1.1.8).

These requirements are explained in more detail below.

b. Composability and Flexibility: Provider Tools (1.2).

JSIMS must permit users a significant degree of flexibility to tailor the system to meet training/event objectives that are unique in terms of theater, mission scenario, training audience, fidelity, resolution, etc. To provide this capability, JSIMS must include a number of provider tools. These tools are defined below in terms of their utility during the phases of a training event.

i)   Pre-Event Planning and Preparation.

Planning and Scheduling Tool (1.2.1): JSIMS must be able to access, download, and manipulate data in JEMP and similar Service training support systems (1.2.1.1). By entering information correlating to one or more of the JEMP components, this planning tool should return relevant information on the remaining components (1.2.1.2). JEMP I components include JMETs; the Joint Exercise Schedule (EXSCHED); the Master Scenario Events List (MSEL); and the Joint Uniform Lessons Learned System (JULLS). JEMP III will replace JEMP I sometime in the future.

Scenario Preparation Tools (1.2.2): Scenario preparation is the combination of a number of staff-related functions employing products that are performed or developed at various times and locations. For example, the exercise planner may use previously developed exercise objectives (a product) to plan an exercise, even though he or she may not have been a participant in the process that produced the objectives. Scenario preparation tools provide the exercise planner the means to compile and integrate these products into a coherent, meaningful, and executable scenario. JSIMS Scenario Preparation Tools must:

- Interface with supporting and supported command planning systems, including the ability to electronically transfer developed plans and databases from operational systems to the JSIMS scenario preparation tool (1.2.2.1);

- Automate the identification of environmental conditions required to support stated objectives by correlating training objectives, supporting and enabling tasks, and associated measures with the requisite civil, military, and physical conditions described in UJTL, v.2.1. This function supports the instantiation of the environmental model (1.2.2.2);

- Customize unit representations on-site, including force composition; force behavior and doctrine; force lay-down; command and support relationships; and the allocation of forces among the training audience, role players, and semi-automated/automated decision makers for all sides and factions (1.2.2.3);

- Scale opposing forces to a level commensurate with U.S. and friendly force levels, training objectives, intensity of anticipated combat and length of exercise (1.2.2.4);

- Access intelligence networks and databases to electronically update position and status of real-world threat systems depicted in a JSIMS database (1.2.2.5).

Database Preparation and Initialization Tools (1.2.3): The ability to rapidly develop approved databases to support JSIMS applications is pivotal to providing a flexible and responsive system. Database preparation tools provide users both the means to rapidly access, collect, and populate JSIMS data structures with information from multiple sources and the ability to test the synthesized databases for internal consistency and operational soundness. JSIMS Database Preparation and Initialization Tools must:

- Support the synthesis of generic and real-displaced environmental and object databases using data from multiple real-world sources (1.2.3.1);

- Access and download data from command and control systems; Service and joint planning systems; database repositories; other simulations including Service and joint analysis systems; and archived data from operations (including operationally derived performance data), field training exercises (FTX), and other computer assisted exercises (CAX) (1.2.3.2);

- Support the development, testing, and installation of new environmental and object databases within 96 hours; major modification, testing, and installation of an existing database within 24 hours; and testing and installation of an off-the-shelf database in 2 to 4 hours. Real-displaced representations involve the depiction and movement of one or more elements of the environment, from a real scenario, to a fictitious location, e.g., depicting and moving elements of a neutral air defense network from a politically sensitive area to a fictitious island (1.2.3.3);

- Test modifications to approved databases to include verification that modifications have the desired result without incurring unexpected side effects in other areas; internal consistency between data structures is maintained; and operational soundness is preserved (1.2.3.4);

- Accommodate real-world security restrictions with respect to classification and releasability (1.2.4).

Communications Architecture: JSIMS communications architectures, like the simulation itself, must be tailorable to the needs of specific exercises. JSIMS communication architectures must support collaborative planning, database preparation and testing, conduct of the exercise, and AAR functions performed from a combination of fixed and mobile sites. Architectural features must include distribution of the simulation, operation of C4I networks, voice communications, and support for administrative systems (i.e., FAX, e-mail, video-teleconferences, etc.). Communications planning tools will assist communications officers in composing a communications

architecture from user-defined resources (e.g., C4I systems, processors, encryption equipment, networks, etc.) to support the users' specific needs and objectives. JSIMS Communications Architecture tools must:

- Automate design of composable communications architectures from user-defined assets (communications equipment, C4I systems, M&S related equipment/computers, exercise architecture, encryption devices, access to SATCOM, etc.) (1.2.4.1);

- Populate C4I databases with exercise data generated using scenario and database preparation tools (1.2.4.2). This requirement includes the ability to electronically pass data from a central facility to remote C4I nodes;

- Test the operational integrity of C4I systems with dual access to real world and exercise data (1.2.4.3).

AAR Preparation (1.2.5): To support effective training, JSIMS must provide a direct link between training objectives or tasks, the conditions under which the tasks are performed, and the measures used to assess the degree to which task performance satisfies command-established criteria. Comprehensive AAR tools are required to assist exercise directors and their staffs in planning for and evaluating the suitability of the training environment (conditions) and assessing task performance, per established standards. The AAR function is described in detail later in the report.

ii) Execution Phase.

Technical Control (1.2.6): Technical control of a distributed simulation includes operating, monitoring and controlling systems operation. This function includes systems configuration, software performance, and network connectivity. An advanced technical control workstation should provide users the capability to perform technical control functions with assigned personnel requiring no more technical expertise than is normally needed by role players.

JSIMS Technical Control Tools must:

- Support test of systems configuration (including communications protocols), equipment operation, network connectivity, and integrity of network security in a distributed environment (1.2.6.1);

- Enable modification to environmental, object, and C4I databases during the exercise without disrupting the simulation (1.2.6.2);

- Support network switching and related communication management functions;

- Support technical management functions such as time control/game ratio; check points and archiving functions; systems/networking monitoring; crash recovery and record keeping. System monitoring includes interfaces with other simulations, simulators, live forces, and ranges.

Exercise Control (1.2.7): Exercise control (i.e., scenario management), an operational rather than a technical responsibility, is the primary means of ensuring that training objectives are achieved in what is essentially a free-play, self-defining environment (i.e., an environment in which a player's decision directly influences the direction of future events). JSIMS must support scenario control/execution by providing the Exercise Director and his staff an accurate picture of an "n"-dimensional battle space, along with the tools to monitor and manipulate simulated activities. JSIMS senior control workstations must:

- Include ability to access in real-time "observed" data, download it, and populate appropriate environmental databases (1.2.7.1); (Include ability to interact with data to support accomplishment of training objectives.)

- Display the status of any simulated networks (e.g., communications, power distribution grids, lines of communication, pipelines, etc.) (1.2.7.2);

- Provide the capability to select between a 2D and 3D display of any point in the battlespace from any perspective (1.2.7.3). Controllers must be able to compare game truth with the C4I displays being provided to the training audience;

- Provide the capability to manage up to 54 simultaneous and distinct scenarios to support education (1.2.7.4). This function includes the ability to interact with objects, to modify any object characteristics (e.g., behavioral attributes, location, combat or supply status, side and faction relationships, organization relationships, etc.), and to introduce new objectives during the course of a scenario, all on a selective basis in terms of which games are being modified, without disrupting the simulation;

- Provide instructors and control staff with a user-defined, rule-based system of on-line queries, or cues, to highlight major areas of interest or critical events (1.2.7.5). For example, if unit status drops below 70 percent and the unit is engaged, the system might be instructed to pan to and display a flashing unit icon on screen. JSIMS must support changes, additions, or deletions, in whole or in part, to the conditions that trigger automatic, game-generated responses and to the form which those response take (e.g. report, flashing icon, on-line message, file entry, etc.);

- Provide instructors and control staff with the ability to query the status of any object, real or simulated, using windows-type pull down menus (1.2.7.6);

- Provide the capability to modify or override any game command, regardless of source (1.2.7.7);

- Provide the capability (in order to support AARs) to modify automated data collection at any time, including the ability to define new conditions and measures and to modify or delete existing conditions and measures (1.2.7.8).

Role Player Graphical User Interface (1.2.8): Role players provide a buffer between the training audience and the simulation, an important function that must not be overlooked, particularly at tactical maneuver level where voice is the primary means of communicating information. The Graphical User Interface (GUI) provides role players the means of monitoring and directing the activities of simulated units assigned to them. JSIMS GUI must:

- Provide role players the capability to select between automated or manual control of assigned units, regardless of side or faction, definable down to unit level (e.g., permit manual control one unit, while automating the control of others) (1.2.8.1). Moreover, either automated control or manual control could be assigned to entire sides, factions, etc.;

- Provide role players the capability to direct the activities of all JSIMS support functions (movement, logistics, etc.) for units under their manual control (1.2.8.2);

- Provide the capability to select between a 2D and 3D display of any point in the battlespace that is consistent with the position, status and capabilities of assigned units (1.2.8.3). For example, special operations teams possess organic capabilities (2D and 3D) for a much clearer picture of the battlespace than regular formations at the same level (2D only). The field of view must also reflect the tactical environment at the point of observation and be subject to real-world constraints such as line of sight, time of day, battlefield obscurants, the degree to which opposing units are in defilade, etc.;

- Provide a rule-based system of on-line queries, to highlight major areas of interest and critical events (as discussed above regarding exercise control) with the caveat that the role player's field of influence is restricted to the assigned area of responsibility (1.2.8.4).

iii) Post-Exercise Phase.

The composability and flexibility tools that JSIMS must provide to trainers and controllers in the post-exercise phase exclusively concern the AAR function.

c. *Scalability (1.3).*

Scalability is the ability of a distributed simulation to maintain time and spatial consistency as the number of entities and accompanying interactions increase. JSIMS must be able to accommodate multiechelon exercises in which different scales of simulation are interacting (1.3.3). For example, a high-resolution, entity-level virtual simulator could be linked to an aggregate-level, constructive simulation. Multiechelon training audiences introduce other scaling complications regarding resolution and fidelity. For example, in a joint training exercise focused on training the JTF headquarters staff and the JTF component staffs, the level and number of units commanded at each echelon vary, and the level of units at still lower echelons that have to be *tracked* by the simulation to satisfy information requirements also varies (1.3.1, 1.3.2). Each level—players, simulated commands, and level tracked—requires its own degree of resolution and fidelity and its own set of interactions. JSIMS must support this kind of differentiation.

d. *Semi-Automated Forces (SAFOR) (1.4).*

JSIMS must provide the capability to incrementally automate many of the manpower-intensive control functions (e.g., response cells for simulated forces) typical to existing M&S systems throughout the exercise time frame (1.4.1). One means of doing this task is through wider use of SAFOR, also known as computer generated forces (CGF). SAFOR/CGF are simulated forces that model human and organizational behavior to the extent that the forces take some actions automatically without requiring a human-in-the-loop (1.4.2). Use of SAFOR/CGF will be especially significant when JSIMS is used in connection with training for MOOTW, which will often be characterized by the active participation of a large variety of nonmilitary groups, including official agencies, nongovernmental organizations (NGO), private volunteer organizations (PVO), political factions, and paramilitary groups.

e. *Evolution/Adaptability (1.5).*

As noted in the discussion of JV 2010, the functional requirements for M&S for training, education, operating concepts, tactics, doctrine, and other areas are likely to change rapidly over time (1.5.1, 1.5.2). Simultaneously, advances in hardware and software are expected to expand simulation capabilities (1.5.3). If JSIMS is to keep pace, its architecture must include the inherent flexibility to respond to

future functional requirements and to incorporate progress in hardware and software technology. Where feasible, successful technological demonstrations like ARPA's Advanced Distributed Simulation (ADS) and Synthetic Theater of War (STOW) and other projects will be leveraged (1.5.3). Finally, JSIMS management must include a mechanism and single authority for introducing and authenticating changes to the system (1.5.4).

2. Required Capabilities and Functions Common to Many or All of the Use Cases.

Analysis of the 89 use cases revealed a number of common, or *core,* capabilities and functions–those that apply to at least a majority of use cases–required for JSIMS. The following requirements represent these core capabilities and functions. In addition, they represent the minimum functions to be developed in Consolidated Use Case One.

a. *Training Objectives (2.1).*

JSIMS must be able to support UJTL, JMETL, and TTL-based training (2.1.1). See Appendix D, Enclosure 6.

b. *Exercise/Event Scenarios (2.2).*

JSIMS must be able to generate scenarios across a range of increasing complexity, defined in terms of the scope/intensity of the operation, number of forces involved, and size of the battlespace. The range extends from global operations and general war, though major regional contingency (MRC) and lesser regional contingency (LRC), to MOOTW (2.2.2).

i) Each scenario includes within itself a large number of related scenarios. MOOTW scenarios, for example, could address peace operations, humanitarian assistance, counter-terrorism, noncombatant evacuation, various forms of stability operations, or combinations thereof. LRC and MRC scenarios could include actions in any of the warfare domains—air, land, maritime, and space.

ii) The current priority for development of JSIMS capabilities with respect to scenarios must rest on the MRC. Choice of scenario among the CINCs will be based primarily on mission guidance and reflected in annual joint training plans (for example, MOOTW scenarios will predominate in SOUTHCOM exercises). However, given limited training resources and a wide range of mission requirements, *joint training policy still identifies mission capability for MRC as the first priority for joint training.*

c. *Phases of Operations (2.3).*

JSIMS must model all five phases of military operations: mobilization, deployment, employment, sustainment, and redeployment (2.3.1). However, priority of use clearly falls on deployment (2.3.1.2), employment (2.3.1.3), and sustainment (2.3.1.4), with employment as the highest rated phase in all consolidated use cases. The emphasis on deployment and redeployment is probably understated due to the lack of any use case inputs from the mobility community. Similarly, it is reasonable to expect that if reserve components had been canvassed, mobilization would have surfaced more frequently in use cases. The system must also move seamlessly from one phase of operation to the next (2.3.2), and it must be capable of representing different phases simultaneously for multiple MRC scenarios (2.3.3).

d. Theater (2.4).

JSIMS must support the need for medium size theaters, as defined by UJTL, v. 2.1 (2.4.1). See Appendix D, Enclosure 7, Table 5. This size theater, covering large battle spaces areas, similar in size and shape to the largest JTC and JTLS play boxes, are common to all use cases, with the exception of Crew/Team Rehearsal and, to a lesser extent, Doctrine Development at the tactical levels.

e. Number of Sides (2.5).

JSIMS must have the capability for multisided simulations (2.5.2). Overall, 90% of use cases require the capability to model from 2 to 30 sides (2.5.1). Sides include a wide range of military and nonmilitary organizations: friendly, allied/coalition, enemy, and neutral forces; government agencies; international organizations; private volunteer organizations; NGOs; political factions; paramilitary groups; and religious/social groups.

f. User Location and Distributed Mode (2.6).

Training audiences and supporting M&S tools are often not located at one site (2.6.1). A training audience can consist of organizations at various levels within the chain of command, with different views of and interests in the battlefield. Consequently, JSIMS must be able to operate in a distributed mode (2.6.2), to various dispersed training audiences, with or without external support, coupled with the ability to conduct smaller events in a stand-alone mode using organic resources. Distribution of the system's multiple capabilities must be tailored to each level, must present the degree of resolution/aggregation and fidelity required at each level, and must be active or available from planning through post-event assessment.

g. Visualization (2.7).

JSIMS must provide visualization of the battlespace from the perspective of both the provider and training audience. All Consolidated Use Cases require 2D (2.7.1) and 3D visualization, except for Crew/Team Rehearsal, which requires only 3D immersive (2.7.2).

h. C4I Interfaces (2.8).

The ability to communicate directly with the simulation via C4I or a C4I simulator is common to all use cases (2.8.1). This system must model information warfare and represent its adverse effects on C4I systems performance within simulated environments (2.8.3). This requirement also drives a common level of information feedback that is C4I specific rather than user dependent. Interfaces must be transparent and fully consistent with user formats and procedures. See Appendix D, Encl. 8, for an initial enumeration of C4I systems with which JSIMS must interface (2.8.2).

i. Synthetic Environment (2.9).

The *conditions* under which joint tasks are performed are encompassed by the attributes of the physical, military, and civil environments described in Section 3, UJTL (CJCS 3500.04). For JSIMS to be used effectively to train to (or evaluate) these tasks, the system must, at a minimum, incorporate Section 3 attributes in the JSIMS core environmental model (2.1.2).

> i) Data Type. JSIMS must represent four types of environmental data: historical, climatic extremes, observed, and forecast (2.9.1).

> ii) Data Format. Data format falls into three categories—dynamic (2.9.2), interactive, or static (2.9.3)—all of which are required for the system to support consolidated use cases.

> iii) Data Representation. Representation is categorized as generic, real, real-displaced, or other, with most users expected to employ real data. JSIMS must be capable of building databases in all four categories (2.9.4).

> iv) Behavioral Representation. JSIMS must also represent the vast array of objects, entities, behaviors, and interactions that must populate the synthetic environment. *The universe of functional requirements associated with this array will be defined downstream with the active participation of domain EAs and DAs.*

j. Security Considerations (2.10).

Security considerations concern three issues: classification level, the need for multiple levels of security (MLS), and releasability.

i) Classification level. All use cases require the capability to run at the Secret level (2.10.1). The Top Secret (TS) classification level is required for all consolidated use cases except Professional Military Education. Lower fidelity applications of JSIMS will tend toward unclassified classification, with a similar trend toward TS/SCI (sensitive compartmented information) on the high-fidelity side (2.10.2).

ii) Multiple levels of security. JSIMS must support elements of the training audience working at different classification levels or with different access to information (2.10.3).

iii) Releasability. JSIMS will often support events that include multinational and interagency participation. As a result, JSIMS must have the capability to regulate access selectively to the simulation environment as a whole or to certain products (2.10.4). Data elements must carry all associated security tags that identify classification level and release criteria.

k. Simulation Time Management (2.11).

JSIMS must have the capability to vary the game speed (2.11.1), step back in time (2.11.2), and jump forward (2.11.3). Game speed requirements vary from pausing the simulation to game ratios of 10:1 and higher. Step back capability must include the capability to return to previous time without altering the state of the simulation prior to the step back. Jump forward capability includes moving the simulation forward in time as many as 100 days, in a minimum of real time, while representing the effects of simulated activity—consumption, attrition, maneuver, weather, etc.—that would have occurred during the period of the jump.

l. System Operators (2.12).

JSIMS is required to be operated with organic operators (i.e., personnel assigned to the training audience) (2.12.1) and/or external support (i.e., personnel provided to run the system from an external source) (2.12.2). JSIMS must incorporate tools and features to reduce significantly the time required to train organic system operators, perhaps as low as 24 hours (2.12.3). (In addition, see Section III, paragraph A).

m. AAR Functions (2.13).

JSIMS is required to have a comprehensive AAR function, particularly for training and education (2.13.1). Commanders at all echelons in all joint organizations and Services are charged with responsibility to prepare to accomplish assigned missions and to assess the ability of their organizations to accomplish those missions. The AAR provides commanders the means by which

to evaluate to what extent training objectives and performance standards are attained by a specific training audience. The AAR process is embedded in the Joint Training System and is a required element of every joint training event.[12] JSIMS AARs are required to take a variety of forms and use a variety of presentation means. The AAR process must be fully tailorable by the event director or senior trainer in order to meet the specific needs of the training audience. The AAR process is carried out over the four phases of a training event:

i) Planning (2.13.2). During the planning phase, training event directors develop the concept of operations for the AAR process. JSIMS must allow the event director to develop a data collection management plan in conformity with scenario generation, based on specified training objectives, each in turn described in terms of task, conditions, and measures. During this activity, an AAR template is created to guide data collection, identify critical events to be tracked, and format the AAR presentation. Data collected could include planning, terrain, weather, communications, observational, situational, activity, electronic, and/or data generated from the organic C4I equipment in use during the training event. The system must provide information in a format that allows examination of synchronization of activities among command and staff elements. Other elements of planning that JSIMS must support include (2.13.2):

- Identification of the number and types of AARs or Facilitated AARs (FAARs) that are to be conducted. JSIMS must be able to support daily, intermittent, and final AARs, each with their own unique requirements.

- Determination of how the AAR process will be distributed to elements of the training audience located in dispersed sites.

- Identification of the products (summaries, subplans, post-exercise reports, etc.) that will be used to prepare for and execute the AAR.

- Determination of the process and elements of evaluation of the suitability of the training environment itself to meet training objectives.

- Planning for the comparison of results of the current event with evaluations of similar or related events carried out previously or with established performance measures.

ii) Preparation. The data collection management plan is normally completed and approved during this phase. The primary capability required is information processing. The AAR function must (2.13.3):

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[12]   CJCSM 3500.03, Joint Training Manual for the Armed Forces of the United States, 1 June 1996.

- Tailor data collection to each training objective in terms of task, conditions, and measures to facilitate task proficiency observations.

- Automate the production and nomination of candidate AAR aids by providing expert logic aids for tracking exercise training objectives to data collection. In addition, the function must automate the correlation of objectives, supporting and enabling tasks, and associated measures/criteria of standards, with the requisite civil, military, and physical conditions described in the UJTL (2.1.3). Trainers must be able to select aids relevant to specific kinds of training events.

- Process/merge information collected from different simulation environments.

- Provide capabilities to continuously compare training audience performance to measures on a real-time basis. Comparisons must include process and product measures of performance (objective and subjective).

- Allow users to select critical events occurring over the electronic data stream to be monitored. JSIMS must have the capability to alert users when a critical event or the conditions requiring a critical action occur.

- Provide the user with the capability to examine all relevant data from the network data stream in a format that supports rapid analysis.

- Allow users to integrate observed data with simulation data.

- Allow users to configure standardized outputs to the echelon being trained.

- Support pre-event train-up for analysts and observers detailed as members of the AAR cell.

- Provide the capability for users to run the scenario at an accelerated pace prior to the event to verify that the event as constructed will generate the desired training environment with conditions appropriate to achieve training objectives.

iii) Execution. The primary JSIMS capability required for this phase is information presentation. The AAR function must (2.13.4):

- Accommodate a range of AAR requests from semi-automated to customized to standardized products and analysis.

- Support the storage, retrieval, and display of a library of AAR aids using text, graphics, and figures.

- Provide standardized products incorporating playback capability: C4I and/or video products; access to doctrinal resources; UJTL statistical products; terrain analysis; and observer inputs. Standardized products must be appropriate, related to UJTL/TTL-derived training objectives, and distributable to each echelon being trained.

- Provide responsive feedback supporting the evaluation of mission rehearsals and course of action analysis.

- Permit observers to enter observation data and AAR analysts to receive near real-time observations for timely analysis and immediate feedback to the training audience during the event as a means of coaching, mentoring, and using the AAR process as a training tool.

- Compare recorded ground truth with player perspective.

- Provide flexibility and composability by offering a variety of choices regarding how data is displayed: flexible menu of graph and table options; wide variety of unit and equipment types, supply classes, multiple sides; varied set of briefing templates; capability to access and integrate results from previous AARs; capability for custom displays; capability to supplement standard aids with manually produced aids. When and where appropriate, the system must have the capability to display AAR data and products on organic C4I equipment.

- Provide tools enabling additions or modifications to AAR products and creation of new displays without costly reprogramming or other formal product improvements using the GUI.

- Provide multimedia capabilities for simultaneous, synchronized display of high-resolution, 3D, out-the-window and stealth views of the battlefield; communications traffic from selected nets; map views with terrain and cultural features; overlays and entity icons; graphic and tabular displays; text and graphic displays from operational orders, messages, doctrinal references, stored demonstrations, and lessons learned resource libraries.

- Provide planned and on-call feedback during the course of the training event without disrupting the simulation.

iv) Post-Exercise and Evaluation. This AAR phase requires two functions: archiving data and preparation of support packages for the training audience,

such as the Commander's Summary Report for joint training exercises. The system must (2.13.5):

- Automatically provide archival information to other systems and organizations engaged in collecting lessons learned, training management, and determination of future training requirements (e.g., JEMP, JULLS, JWCA, etc.). Information so provided may be sanitized to ensure nonattribution to the training audience;

- Provide feedback on the sufficiency of doctrine employed during the event;

- Provide the resource manager information on the cost and use of resources during the event;

- Provide capability for on-line analysis using tools to capture, store, retrieve, and manipulate relevant, archived AAR information, particularly with respect to comparing the current training event with AARs of related, previous events;

- Provide support for preparation of take-home packages;

- Provide immediate (hot wash) feedback for interim and final AARs within 1 hour and a comprehensive debrief within 3 to 6 hours. The system must support completion of the commander's summary report within 20 days of the end of the training event.

v) Technical AAR. JSIMS must also provide AAR information on its own system performance during the training event. The technical AAR must include the following, at a minimum: effect of use of JSIMS on the communications network; downtime attributed to software and hardware components; performance data related to interfaces with other live, constructive, and virtual simulations (2.13.6).

vi) Support Requirements. The AAR function should be sufficiently automated to minimize the number of analysts or controllers required to prepare the AAR (2.13.7).

3. Capabilities, Characteristics, and Functions That Distinguish the Seven Consolidated Use Cases.

Clearly, from the previous discussion of common capabilities and functions, there are broad areas of overlap among the functional requirements and capabilities for each of the seven consolidated use cases. Figures 6 through 9 depict the relationship between the seven use cases and the users' environment, the need for fidelity, and exercise

design/systems architecture. While not explicitly the same, the similarities in the figures are illustrative of the operational and technical similarities existing among the consolidated use cases.

Correlation With the Real-World

Level of Representation (vertical axis)

Required Fidelity — Low to High

Conceptual in Nature	Current OPLANS & Ops	Limited to Assigned Mission
Notional Forces	Assigned Forces	Platform Level & Below
Low Behavioral Complexity	Medium Behavioral Complexity	Highest Behavioral Complexity
Highly Aggregated World View	2D/3D C4I View of Battlespace	3D Correlation to Actual Event

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Figure 6: Correlation With the Real-World

Operational Focus

Level of Representation (vertical axis)

Universal Joint Task List

Strategic National Level Strategic Theater Level Operational Level Tactical Level
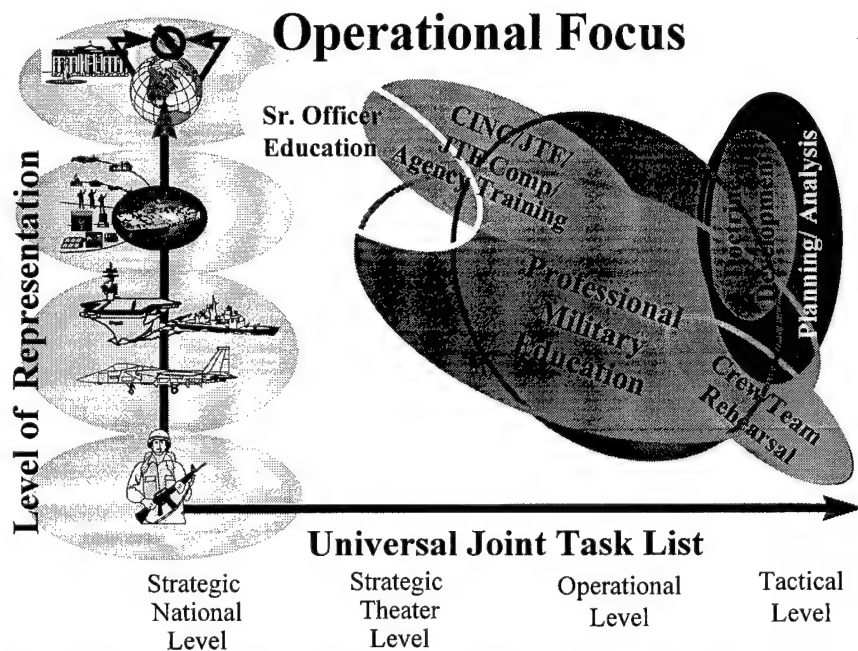
* Note: Requirement to support Doctrine Development and Planning/Analysis use cases is inherent in both CINC/JTF/ Component/Agency Training and Service/Agency Training use cases.

13

Figure 7: Operational Focus (Universal Joint Task List)
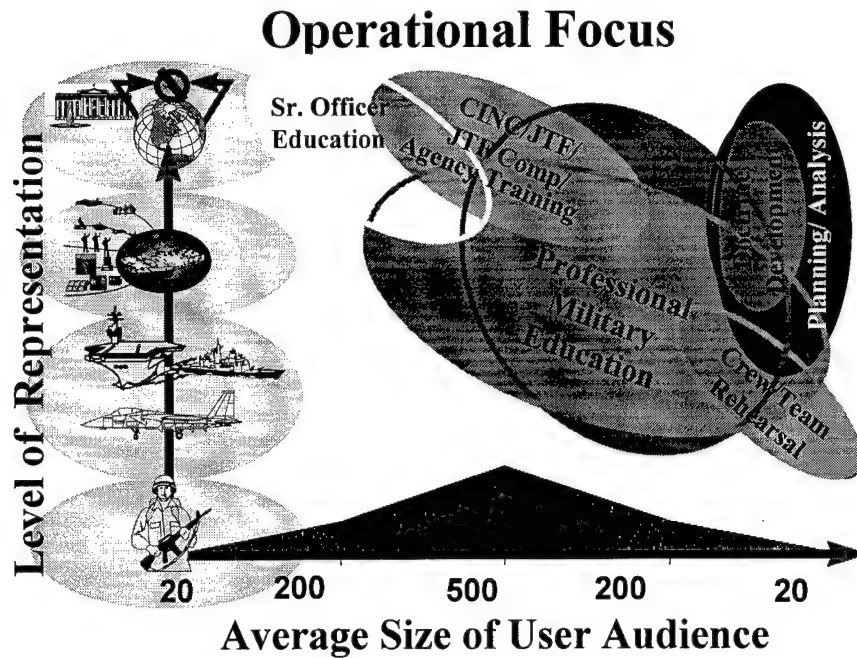
Operational Focus

Figure 8: Operational Focus (Average Size of User Audience)

Exercise & System Architectures

Operating from Different Locations ⟷ Operating from a Single Location
WAN with Mix of Equip & Ops Systems ⟷ LAN with Organic Resources
UNCLAS and or MLS to SECRET ⟷ MLS SECRET to TS/SCI
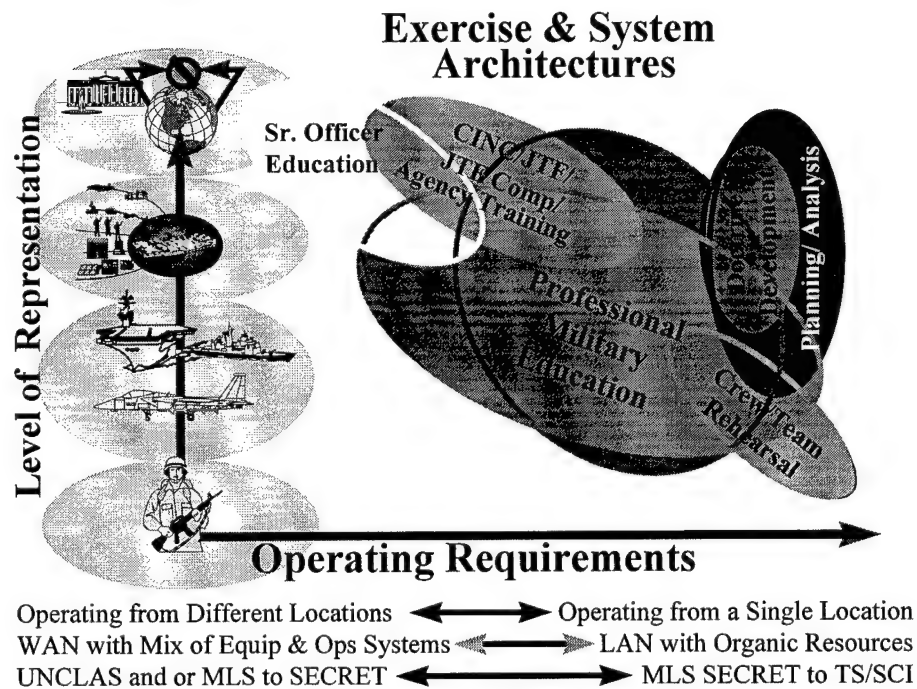
Figure 9: Exercise & System Architectures

In addition to the core requirements and common tools described above, the consolidated use cases themselves, while unique, represent a natural extension of capabilities from one to the next. JSIMS can be pictured in terms of layered requirements. Taken together, core capabilities, coupled with the unique aspects of each use case (the layers), define both the requirements for JSIMS and a logical implementation strategy. The following text considers each consolidated use case in sequence of priority, provides a brief description of the content or nature of the use case, and defines additional functional requirements that distinguish it. As each use case is defined, the set of outstanding functional requirements grows smaller. Unless otherwise indicated, the discussion below provides information that satisfies typical requirements. The full range of requirements for each consolidated use case are in the supporting documentation at Appendix D, Enclosure 7.

a. *Use Case One: CINC/JTF/JTF Component/Agency Training (3.1).*

This consolidated use case encompasses headquarters training for JTF component commanders and staffs, JTF commanders and staffs, and CINC staffs in strategic national, strategic theater, and operational tasks. Use Case One also provides a limited capability to support Service and Agency staff training, staff level mission rehearsal, both Senior Officer and Professional Military Education, and to a lesser degree, Doctrinal Development and Planning and Analysis.

Collectively, the individual use cases that define CINC/JTF/JTF Component/ Agency training have the highest priority based on functional requirements that must be implemented first to meet evolving training needs. Use Case One reaches the largest training audience and provides the greatest utility in terms of the variety of applications that it supports. CINC/JTF/JTF Component requirements drive prerequisite capabilities for supporting stand-alone Service and Agency training/education. For example, the JMETs, which form the foundation of the training objectives, conditions, and measures for the training environment which JSIMS must represent for Use Case One, include enabling and supporting tasks that extend laterally and vertically to the other consolidated use cases.   In addition, Use Case One provides a balanced, solid baseline, which once implemented, can be logically expanded and refined to meet the unique requirements of the remaining consolidated use cases, e.g., the need for behavioral complexity and greater fidelity.

i) JSIMS must support joint training scenarios that: (1) focus on strategic national, strategic theater, and operational level training objectives (3.1.5) and (2) range predominantly from LRC/MOOTW to warfighting, in small and medium theaters, as described previously. Occasionally, CINC/JTF exercises require representation of single large theater or a noncontiguous 2MRC (2.4.2) or a global theater for functional CINCs (2.4.3). MOOTW scenarios can stand alone or comprise an integral part of an LRC or MRC scenario. Phases of

operation focus on employment, sustainment, and deployment in that order, with lesser emphasis on mobilization (2.3.1.1) and redeployment (2.3.1.5). The majority of joint training events include 24 hours per day operations and are completed in 10 days (3.1.1).

ii) Joint training events typically involve up to 30 sides and factions, with moderate fidelity and levels of resolution. These sides must include manned OPFOR cells supported by representative OPFOR C4I systems to support information warfare (3.1.2). In this respect, there is a requirement to include the behavioral characteristics of OPFOR units to fully exploit the strategic and tactical advantages of IW without a significant increase in OPFOR manning (3.1.3). Both friendly and enemy units are typically represented down to the level of battalions, squadrons, and ships (3.1.4). Information used by the training audience to monitor and direct battlespace activities is normally tracked at lower levels, with the volume, frequency, and quality of information metered by real-world capabilities and available C4I systems. In addition to C4I displays, Exercise Directors and their staffs need 3D visualization of the battlespace to monitor the conduct of the exercise, ensure training objectives are achieved, and aid in AARs.

iii) Both real and real-displaced environmental representations are required. Real-displaced representations involve the depiction and movement of one or more elements of the environment, from a real scenario, to a fictitious location, e.g., depicting and moving elements of a neutral air defense network from a politically sensitive area to a fictitious island.

b. *Use Case Two: Service/Agency Training (3.2).*

This consolidated use case focuses on service training in a joint battlespace at the component/unit level in operational and tactical tasks (3.2.3). Although Use Case Two is a natural extension of Use Case One, it does incorporate two significant additional features: increased behavioral complexity (3.2.4) and higher levels of resolution (3.2.5). The increase in behavioral complexity is required to automate joint, sister service staffs, decision processes, and products that require the participation of superior and lateral staffs when those staffs are not part of the exercise. Higher resolution is required to support Service-specific training at lower echelons. Additional requirements, unique to Use Case Two, include:

i) Twelve-hour-a-day system operation is required for this use case as often as 24-hour operation. Consequently, JSIMS must be able to stop and restart game play while maintaining continuity of the simulation. It must also be able to advance play automatically from one 12-hour period to a period 12 hours later in order to support training and individual battle staff shift (3.2.1).

ii) JSIMS must represent units down to company, aircraft, and team level (3.2.2). Information is normally tracked at the lowest level, including individual level in selected situations, with the volume, frequency, and quality of information metered by real-world capabilities. At this level, voice communications is the primary means of controlling subordinate units although digital means of communications are used (2.8.1).

c. *Use Case Three: Planning and Analysis (3.3).*

This consolidated use case concerns operational planning and course of action analysis at tactical levels. Use Case One and Use Case Two support planning and analysis at the joint and component levels. (Note: Only one use case in this category focuses on tasks at the strategic-national level; it is considered an outlier until additional requirements are developed. In addition, total data for Use Case Three is qualified by its source: input primarily came from trainers and not from planners.)

i) JSIMS must support a higher degree of fidelity and levels of resolution down to item level, with a greater degree of behavior complexity (3.3.1). User audiences are typically small, on the order of 10 to 30 people. This size differential drives the requirement for a marked increase in the degree to which this simulation represents behavioral complexity compared to previous use cases (3.3.8). Here, it is essential to the automation of large portions of the simulation (3.3.2).

ii) The scenario must interface with "real-world" planning systems and provide "what-if" capabilities; the system must be able to run independent excursions without disrupting the main scenario (3.3.3). For example, JSIMS must support the capability to make, archive, and compare multiple runs. Repeatability is not required, but the ability to support comparative and statistical analysis is required (3.3.4). This process includes the ability to define measures of effectiveness (3.3.5), automate data collection (3.3.6), and provide basic post-process capabilities (i.e., standard statistical packages, use of relational databases, automated formatting and transfer to graphics support packages, etc.) (3.3.7).

As another example, JSIMS must support the rapid development of environmental and object databases as specified under common tools. In addition, JSIMS must be able to access, download, and automatically update the position and status of real-world threats, units, etc., from operational systems/nets [Joint Deployable Intelligence Support System (JDISS), SIPRNET, Intelink etc.] (3.3.7).

d. Use Case Four: Crew/Team Rehearsal (3.4).

This consolidated use case addresses crew/team rehearsal at the platform and individual levels. Use Case Four could also be used to provide highly focused scenarios for service-related training and mission rehearsal. The principal difference between Crew/Team Rehearsal and the previous use cases is the increased requirement for fidelity and subentity resolution. (Note: Only two use cases from user workshops are contained within this category; more information is needed to define it more completely.) Additional requirements include:

i)   Use Case Four requires the highest fidelity and level of resolution, potentially at subentity level, of the seven Consolidated Use Cases. Typically, the man-in-the-loop and the team are represented (3.4.1).

ii) JSIMS must provide a virtual environment that includes 3D visualization of the battlespace. This requirement includes providing the individual or team the capability to view and interact in a simulated 3D environment where the simulation recognizes and reacts to the users' presence. The ability to view entities at this level includes the requirement to represent the multispectral signatures of objects (e.g., an Infrared source viewed through night vision goggles, etc.) (3.4.2). There is a general consensus by the EAs that total immersion requirements should be met by integrating with other systems.

e. Use Case Five: Professional Military Education (3.5).

This consolidated use case focuses on the education of company and field-grade officers in planning and implementing tasks at the operational and tactical levels. Additional requirements are few:

i)   JSIMS must support this category of usage with up to 54 simultaneous and distinct scenarios (3.5.1).

ii) Because real C4I systems are not available to the training audience, JSIMS must simulate all C4I systems with highly stylized and compressed formats (3.5.2).

f. Use Case Six: Senior Officer Education (3.6).

This consolidated use case is connected primarily with education of senior military officers in planning and implementing strategic-national and strategic-theater tasks. JSIMS must support the representation of multiple theaters and missions simultaneously (3.6.2). The required levels of aggregation are the highest among all consolidated use cases and behavioral complexity is the lowest.

In addition, the largest scenarios in this use case incorporate NCA decision making at strategic-national level (3.6.1).

g. *Use Case Seven: Doctrine Development (3.7).*

This consolidated use case relates to development of doctrine, primarily at the operational and tactical levels. (Note: This category is heavily weighted by five Navy use cases involving Theater Missile Defense.) Two distinct requirements remain to be defined for JSIMS to support Use Case Seven. JSIMS must be able to modify the highest degree explicit or embedded, complex behavior in aggregated units at multiple levels (3.7.1). In this regard, JSIMS is required to support systems testing and integration to include RDT&E, TO&E (3.7.2), and TD&E (3.7.3).

C. *Future Requirements: Implications of Joint Vision 2010 (1.6)*

1. Introduction

Approved by the Chairman of the Joint Chiefs of Staff in May 1996, Joint Vision 2010 "is the conceptual template for how America's Armed Forces will channel the vitality and innovation of our people and leverage technological opportunities to achieve new levels of effectiveness in warfighting. Focused on achieving dominance across the range of military operations through the application of new operational concepts, this template provides a common direction for our Services in developing their unique capabilities within a joint framework of doctrine and programs . . . "[13]

2. Operational Concepts

JV 2010 is built on the premise that modern and emerging technologies — particularly information-specific advances — will have a tremendous impact on the use of military force and forces and will make possible a new level of joint warfighting capability. The Vision has established four new operational concepts: *dominant maneuver, precision engagement, full-dimensional protection,* and *focused logistics.* Enabled through *information superiority* and *technological innovation,* these new concepts will combine to allow joint force commanders to achieve *full-spectrum dominance.* JV 2010's core ideas have been amplified further by the development of subordinate enabling concepts and future Joint Warfighting Capability Objectives.[14] Collective analysis of this interconnected web of concepts leads to the following projection of possible future requirements for JSIMS that will likely emerge from the evolution and implementation of JV 2010:

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[13] Joint Vision 2010. America's Military: Preparing for Tomorrow, May 1996.
[14] Joint Warfighting Center, Concept for Future Operations (Initial Draft), 1 October 1996.

a. Information Superiority. Information superiority is defined as "the capability to collect, process, and disseminate an uninterrupted flow of information while exploiting or denying an adversary's ability to do the same." It is the central precept within JV 2010. In fact, all four of the new JV 2010 operational concepts are rooted in and dependent upon achieving information superiority. Without information superiority, JV 2010 capabilities are nonexistent. All competitors in a future conflict will seek to achieve information superiority; decisive operations will likely depend on who wins the struggle for information superiority. Although the details of how this struggle will be conducted have not yet been worked out, *it is clear that the most important future requirements for JSIMS will be the capability to model the struggle for information superiority* (1.6.1). Elements of this model that can be foreseen at this time include:

i) Simulation of expanding RSTA (reconnaissance, surveillance, and target acquisition) capabilities to be provided by: RPVs/UAVs (remotely piloted vehicles/unmanned air vehicles); wide-area, linked, air-ground sensor systems; advanced radars; pattern-recognizing software (e.g., automatic target recognition algorithms); improved space-based platforms (1.6.1.1).

ii) Modeling vulnerabilities that will accompany increasing reliance on information systems for military operations across the spectrum of conflict: various enemy actions to destroy, disable, jam, saturate, misinform, deceive, or exploit U.S. information systems. These actions may include computer viruses, hackers, focused EMP (electromagnetic pulse) strikes, electronic deception, etc. Naturally, actions taken to defend against adversary attacks will also need to be simulated (1.6.1.2).

iii) Simulation of military operations under various levels of information superiority or information degradation (1.6.1.3).

b. Precision Engagement (1.6.2). Precision engagement consists of a system of systems that enables U.S. forces to accurately locate the objective, provide responsive command and control, precisely generate the desired effects, accurately assess level of success, and retain the flexibility to reengage precisely when required. Precision engagement is made possible by significant advances in ISR (intelligence, surveillance, and reconnaissance) and C2 capabilities; improved weapons system and organizational lethality and agility; and greatly enhanced standoff and long-range weapons and systems. Anticipated future requirements for JSIMS include:

i) Modeling flatter, faster target acquisition and fire support organizations that eliminate various levels of decision-making and control mechanisms with respect to fires. This will include simulating nontraditional, cross-Service links between target acquisition systems and weapons systems (1.6.2.1).

ii) Simulating direct shooter-sensor links, i.e., sensor-fused weapons systems (1.6.2.2).

iii) Adjusting values to accommodate sharp improvements in all-weather, real-time targeting and lethality at extended ranges (moving toward one-round/one kill capability) and the resultant effects on tempo, force-on-force ratios, battlefield densities, close combat, movement exposure, logistical requirements, etc (1.6.2.3).

iv) Modeling attack of hardened, underground targets employing nonexplosive warheads (1.6.2.4).

v) Modeling the effects of wider use of an expanding family of less-than-lethal munitions (1.6.2.5).

c. Full-Dimensional Protection (FDP) (1.6.3). FDP is the multilayered capability to better protect U.S. forces and centers of gravity at all levels from adversary attacks while maintaining freedom of action during deployment, maneuver, and redeployment. FDP provides a full array of active and passive measures to protect friendly forces from a broad range of threats — mines, missiles, terrorists, enemy forces, biohazards, and weapons of mass destruction (WMD). Future requirements for JSIMS likely to emerge from FDP include:

i) Modeling new, jointly integrated capabilities to detect, acquire, track, and destroy enemy theater ballistic and cruise missiles; dissemination of missile-strike warning across the theater (1.6.3.1).

ii) Simulation of new capabilities to differentiate potential targets as friend, foe, or neutral in sufficient time, with high confidence, and at the requisite range to engage or to protect from harm (1.6.3.2).

iii) Simulation of improvements in enemy and friendly signature control, including increasing use of stealth technology with air, ground, and sea maneuver platforms, as well as on an individual basis (1.6.3.3).

iv) Modeling new capabilities to improve protection against WMD: point and standoff detection; assessment and warning; prediction of effects (1.6.3.4).

v) Modeling antisatellite and satellite defense capabilities (1.6.3.5).

vi) Simulation of improved capabilities for deception and use of decoys (1.6.3.6).

d. Dominant Maneuver (1.6.4). Dominant maneuver is the multidimensional application of information, engagement, protection, and mobility capabilities to

position and employ widely dispersed joint air, land, sea, and space forces to accomplish the assigned operational tasks. The new concept envisions decisive control of the breadth, depth, and height of the battlespace. Dominant maneuver depends on information superiority and incorporates precision engagement as an inseparable component. Future requirements for JSIMS likely to emerge from dominant maneuver are largely reflected in those items already cited above.

e. Focused Logistics (1.6.5). Focused logistics is the fusion of information and transportation technologies to provide rapid crisis response, as well as the ability to track and shift assets while en route and directly deliver tailored logistic packages and sustainment at the required level of operations. Focused logistics, coupled with advances in precision engagement and information management, will likely lead to comprehensive reorganization of current logistical structures and a smaller logistic footprint on the battlefield. Considerations for future requirements for JSIMS include:

i) Modeling the effects of focused logistics on operational tempo, battlefield densities, service life of weapons systems, deadline rates and down-time, etc (1.6.5.1).

ii) Modeling the effects of precision operations on demands for logistical support (1.6.5.2).

iii) Modeling reduced vulnerability of logistical infrastructure to traditional enemy actions; increased threat to infrastructure from information warfare (1.6.5.3).

iv) Modeling nontraditional logistical structures, including increasing nonreliance on shore-based facilities (1.6.5.4).

f. All the potential requirements cited above are reasonable projections based on emerging concepts and technology. Longer range (more tenuous) requirements for JSIMS rising out of JV 2010 might also include modeling and simulation of the following: the use of remotely operated platforms (firing batteries, breaching vehicles in urban terrain, undersea mine-clearers, unmanned ground attack aircraft, etc.); bioenhancements for individual performance; reprogrammable sensors; mobile, self-attaching, vehicle-disabling mini-mines; or directed-energy weapons.

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Section III - User Operating Requirements

A. Training.

1. JSIMS must minimize training requirements[15] for technical controllers, exercise control staff, workstation operators, role players, and other exercise support personnel. JSIMS operation should be user friendly to the extent that no more than 24 hours of training are required to train new personnel to operate and control the system. Training for JSIMS technical controllers must cover the life cycle of a JSIMS-assisted exercise.

2. The training will include hardware and software operation, installation procedures, checklists for normal and abnormal operations, diagnostic trouble-shooting, start/restart procedures, as well as any special procedures anticipated for a given training/education event. The training must include computer-based tutorials, hands-on rehearsal sessions, and on-line help programs.

3. JSIMS must also reduce training requirements by reducing the number of personnel required to operate the system and control the simulation. At IOC, JSIMS must reduce the number of simulation support personnel by at least two-thirds of what was required for a JTC-supported JTF-level exercise in 1995. Personnel reductions will be accomplished incrementally through automation of many of the manpower-intensive functions typical of existing simulations; for example, the reduction in the number of exercise controllers through the use of provider tools for pre-event scenario generation, database build and modification, and automated AARs; reduction in the number of technical controllers through the use of automated configuration of the simulation environment and operation of the components of JSIMS from a central control location; and reduction in the number of role players through the use of SAFOR/CGF. (Although substantial savings in overhead are anticipated through the personnel reductions described above, the majority of savings achieved by JSIMS will result from sharp reductions in the time and effort required to plan and prepare for a JSIMS-supported exercise/event.)

B. Performance Criteria.

1. JSIMS must be able to operate 24 hours a day for a period of 21 consecutive days, with a system availability of at least 95 percent. Availability is defined as the condition during which all components of the system are being operated at technical control-designated speeds, including pausing or shutting down of selected components, while the system continues to process data normally.[16]

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[15] Joint Program Office, JSIMS TRD, 18 July 1996.
[16] Ibid.

2. JSIMS must distribute all required information to all JSIMS elements in such a manner that no single element's picture of the simulation is more than 30 seconds behind that of the simulation.

3. JSIMS must include the capability to save all components without affecting the speed/game ratio (i.e., if system was set at 1:1 before "save," it remains 1:1 during "save") in less than 5 minutes. In the event of a software failure, JSIMS must include capability to resume the simulation such that simulation time and state are the same as at the point of failure. Optimally, JSIMS should be able to resume operations following a failure within the time-frame of the standard C4I information cycle/update routinely practiced by the training audience. JSIMS will be fault tolerant; no single JSIMS component will cause system failure, and system operation will be able to continue, albeit in a degraded fashion, if a component fails. As a minimum, JSIMS must resume operations no later than 1 hour after fault detection.

4. JSIMS is not required to operate in a hostile nuclear, chemical, or electronic environment.

5. With respect to real-world mission rehearsal, JSIMS must be able to complete scenario generation within 96 hours of start-time.

C. Verification, Validation, and Accreditation (VV&A).

In accordance with existing DOD modeling and simulation policy, JSIMS core infrastructure and constituent components must meet requirements for verification, validation, and accreditation. VV&A must be performed throughout the life cycle of the system, from initial development through each build to final fielding and follow-on modification and enhancement. Specific requirements and procedures for JSIMS VV&A will be established separately from this FRD.

Section IV - How JSIMS will be Used: An Illustrative Example

A. Introduction.

1. This section employs a description of a notional joint training exercise to illustrate some of the tasks that JSIMS will be expected to support, to demonstrate how JSIMS functional requirements apply to the operational environment, and to show the linkages between the requirements represented in the separate consolidated use cases. Although this example is completely notional, it is based on and accurately reflects elements and processes of CINC-sponsored joint training exercises that are currently conducted on a recurring basis, such as ULCHI FOCUS LENS (PACOM), UNIFIED ENDEAVOR (ACOM), and ATLANTIC RESOLVE (EUCOM).

2. Joint training exercises are complex events that typically require an enormous effort for planning and preparation. The streamlined discussion that follows highlights a variety of uses of JSIMS during each phase of the exercise, at each echelon of the training audience. JSIMS requirements are italicized at the end of appropriate sections. All of the JSIMS requirements described in this section reflect specific capabilities requested by the various user communities.

B. Exercise Overview.

1. *Notional Exercise* (NE) is an annual event within the CJCS-sponsored exercise program. The basic exercise scenario is focused on JTF operations within the context of an ongoing LRC, occurring almost simultaneously with a second LRC in progress in another theater. A major exercise objective and subscenario is the rehearsal of a hostage rescue plan. In addition to the rehearsal of the hostage rescue plan, the responsible CINC has tasked his Air Component Commander (ACC) to exploit this training opportunity to assess alternative courses of action to execute a key part of the plan. In addition, the Joint Staff J-7 has designated this exercise to assess a newly issued doctrinal manual on information dominance, and the National War College has requested that the scenario and campaign conducted be provided for use in a newly developed course in contingency planning.

JSIMS requirement: *In addition to support for joint and service training, JSIMS must satisfy requirements related to planning and analysis, professional military education, and doctrine development.*

2. NE involves only two phases of JTF operations during the LRC—employment and sustainment. However, an earlier phase—inter-theater redeployment of forces from the LRC already in progress to the present theater—has already taken place. The results of the earlier exercise form the starting point for NE. The employment and sustainment phases are significantly extended in time; the exercise plan includes a

time jump of 125 days to create the conditions for the rehearsal of the hostage rescue plan.

JSIMS requirement: *JSIMS must have the capability to represent and link military operations underway in different phases in multiple theaters. JSIMS must be able to use results from previous events to form the basis of scenario build and database development. JSIMS must be able to take these results, coupled with additional scenario information, and "fast forward" in a doctrinally correct, operationally sound and consistent manner, to create the starting conditions for a new/linked event. The "fast forward" must be able jump as much as 100+ days in very short periods of real time. (Current practices include time jumps of 100+ days that must take place in the 24 hours of real time that separate phases in a training exercise.)*

3.   Exercise participants include all four service components within the JTF, as well as supporting CINCs—SPACECOM, TRANSCOM, and STRATCOM. Vertically and horizontally linked exercise objectives derived from the CINC JMETL and related enabling and supporting tasks are established at each level and incorporated into the exercise's design. The discussions below highlight representative JMETs to demonstrate how they define requirements for JSIMS.

C. *Training Audience and JMETL-Derived Training Objectives.*

1.   Three echelons of command form the NE training audience with a total of approximately 5,000 people. The highest echelon is the JTF staff; the middle echelon is composed of the component staffs; the lowest echelon participants are combat elements within the components (i.e., Army Corps, Navy Task Force, Marine Expeditionary Force, etc.). However, component combat elements are not represented at the same level consistently across all commands; in some cases the lowest level is an allied field army, while in other cases the lowest level is a corps. Figure 10 depicts the command structure and elements of the training audience.
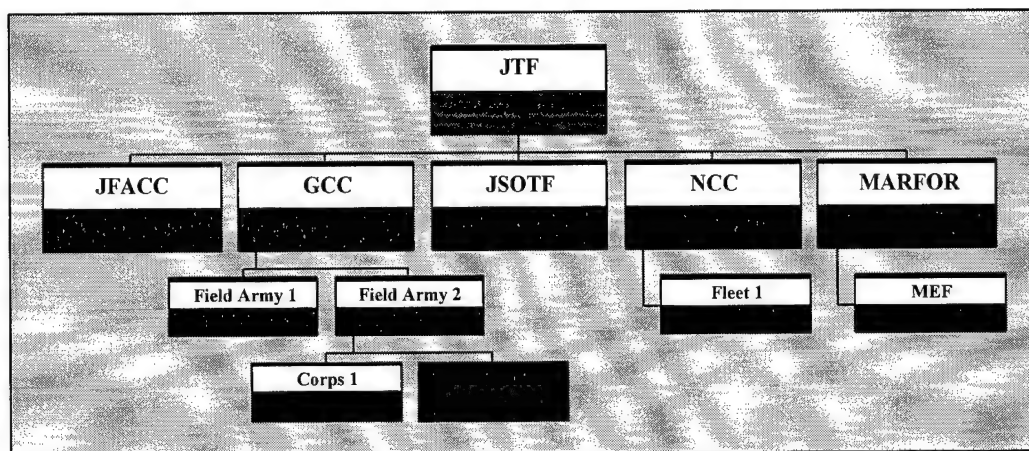
Figure 10: Command Structure

2.   The difference among the echelons of the training audience is a challenge to the exercise planners during exercise design, scenario preparation, and exercise execution, since the tasks at those levels differ significantly in detail and their representation requires differing levels of resolution and fidelity.

JSIMS requirement: *JSIMS must be able to simulate commands not participating in the exercise but represented therein with SAFOR to minimize using 'soldiers as training aids' and to reduce event costs. Use of SAFOR should not compromise realism in the training environment and it must be transparent to live participants.*

3.   Not reflected in the diagram are a number of other important elements in the exercise: multinational and interagency participants. In addition, scenario play is influenced by international organizations, nongovernmental and private volunteer organizations (e.g., UN, Red Cross, Doctors Without Borders), as well as other factions and "sides", such as religiously based paramilitary units.

JSIMS requirement: *JSIMS must represent a multitude of sides through the use of role players employing GUIs or SAFOR. Representation of multinational forces, like that of OPFOR, must be doctrinally and materially accurate.*

4.   CINC/Joint Task Force. The CINC staff (J3 Exercise Division) is responsible for developing the exercise scenario and planning the exercise based on CINC guidance regarding which part(s) of the CINC Operations Plan XX he wants exercised. Exercise Division also uses inputs from the Joint Training Master Plan, JULLS, and components. Exercise training tasks derived from this process include strategic– theater (ST) Level tasks and operational (OP) level tasks. At the ST level, training objectives will be developed for some, but not all of the tasks, from:

- ST.1   Deploy, Concentrate, and Maneuver Theater Forces
- ST.2   Collect Theater Strategic Information
- ST.3   Employ Theater Strategic Firepower
- ST.4   Sustain Theater Forces
- ST.5   Provide Theater Strategic Command & Control
- ST.6   Provide Theater Protection

In addition, some tasks from either ST 7 (Establish Theater Force Requirements & Readiness) or ST 8 (Develop & Maintain Alliance & Regional Relationships) are also exercised since these tasks are inherent in every major event in which plans are rehearsed and coalition warfare is practiced.

Operational level training objectives (which also apply to JTF components) are derived from the following JMETL:

- OP.1 Conduct Operational Movement and Maneuver
- OP.2 Provide Operational Intelligence, Surveillance, and Reconnaissance
- OP.3 Employ Operational Firepower
- OP.4 Provide Operational Support
- OP.5 Exercise Command & Control
- OP.6 Provide Operational Protection

5. Component Level. Five components comprise the JTF: the Ground Component Command (GCC), the Air Component Command (ACC), the Naval Component Command, (NCC), the Marine Force Command (MFC), and the Special Operations Task Force (SOTF). In addition to the OP-level JMETs above, components will also derive training objectives, vertically linked, from the tactical:

- TA.1 Deploy Forces and Conduct Maneuver
- TA.2 Develop Intelligence
- TA.3 Employ Firepower
- TA.4 Perform Logistics and Combat Service Support
- TA.5 Exercise Command and Control
- TA.6 Provide Mobility and Survivability

6. Component Combat Elements. Training objectives for component combat elements reach to the lowest subcategories of the TA level tasks listed above. The actual combat elements participating in NE include:

- For GCC, a Corps and an Aviation (AV) Brigade
- For ACC, the JFACC or AFFOR (the Wing Operations Center is part of the simulation)
- For NCC, a Task Force (TF)
- For MFC, the Marine Expeditionary Force (MEF)
- For SOTF, a Brigade

7. Supporting CINCs and their constituent elements go through a similar process to derive training objectives from their own supporting JMET.

JSIMS requirement: *JSIMS must support training audience objectives by representing the operations within the battlespace required to perform the identified tasks from the JMETL. JSIMS must provide support to identify compatible and conflicting objectives by, at minimum, providing access to previously stored exercise designs and their associated objectives. An array of provider tools for planning, scenario preparation, database management, communications architecture, and other purposes is required to support this complex process.*

D. Simulated Training Environment.

1. The simulated training environment provided by JSIMS must create the conditions necessary for the training audience to perform identified training objectives and tasks to established standards. The training environment consists of the following elements:

- JSIMS
- AAR observers
- White Cells
- Control Structure
- Opposing Force
- Scripting and MSEL Cells
- Blue Forces and their response cells

2. Training audience elements are geographically dispersed in their real-world field locations, tactical operations centers (TOC), and, in the case of the JSOTF, a special purpose simulation center to support 3D high resolution mission rehearsal. The training audience communicates using real-world C4I systems. The simulated environment is distributed from the training provider's central location to the training audience on the same real-world systems. However, because the OPFOR is an exercise-only force, it operates in a total-simulation, man-in-the-loop environment, with no direct connectivity to the training audience other than through intelligence and operational reporting systems.

JSIMS requirement: *JSIMS must provide automated support to minimize or eliminate the requirement for White Cells, MSEL and Scripting Cells. JSIMS must also provide SAFOR with support to reduce the size of or eliminate altogether the Blue response cell and the Opposing Force manpower. JSIMS must provide an interface to other systems including real world C4I, instrumented ranges, and other training systems at both higher and lower resolutions.*

E. Exercise Design and Execution

To further illuminate JSIMS requirements, the remainder of this section describes the process of exercise design and execution in more detail. Three steps are described.

1. Step One: Exercise Design. One training objective selected from the Air Component Command list will be used as the basis for this part of the discussion. The objective is stated below:

"During the destruction phase, effectively coordinate, synchronize, and integrate all fires beyond the fire support coordination line (FSCL) to achieve the CINCs objective."

This training objective basically encompasses planning and executing interdiction missions. The ACC battle staff must consider not only aircraft to accomplish this task but other component systems such as the Army Tactical Missile System (Army TACMS); Navy Tactical Land Attack Missiles (TLAM); Cruise Missiles; Apache Helicopters; and Special Operations Teams. The JMETL tasks that the air component must accomplish when training to this objective are primarily within OP 3–Employ Operational Firepower, specifically, OP 3.2.5.1–Conduct Air Interdiction of Operational Forces/Targets.

The exercise planner analyzes this task along with others to define a number of complex elements. Part of this process is definition of the conditions which influence the interdiction mission results. For this illustration, only the physical and military environments are used. The exercise planner selects the following elements from UJTL, Sec C:

- Physical Environment:
  - C 1.1   Land–Terrain (relief, elevation, and features)
  - C 1.3   Air–Weather and Visibility
  - C 1.4   Space–Objects in Space

- Military Environment:
  - C 2.1.4   Theater Dimensions
  - C 2.4   Personnel Capability
  - C 2.2.5   Modern Military Systems
  - C 2.3.1.3 Staff Expertise
  - C 2.3.1.9 Information Volume
  - C 2.4.2   Intelligence Data Base
  - C 2.6.2   Degree of [target] Camouflage
  - C 2.6.3   Target Hardness
  - C 2.6.5   Target Mobility
  - C 2.6.6   Target Range
  - C 2.7.2   Air Superiority
  - C 2.7.3   Space Control
  - C 2.9   Threat–Related Conditions

JSIMS requirement: *JSIMS must represent these conditions and its data base must be scaleable to support the two separate phases. JSIMS must represent all the entities, objects, and interactions subsumed within these conditions.*

2. Step Two: Exercise Execution. During the training exercise, the ACC battle staff carries out a number of actions to execute the training objective defined above — Conduct Air Interdiction of Operational Forces/Targets. There are planning actions that require information gathering capabilities and tasking capabilities once the air tasking order is complete, and there are execution actions to be accomplished. These actions must be performed under prescribed conditions and under established standards, involving measures and criteria which JSIMS must support. Some examples:

a. Planning Information Requirement:

- Determine Enemy's Operational Capabilities and Course of Action (OP 2.4.1.2).

  - Condition. The capability must exist for enemy forces, threats, and targets to be tactically and geographically positioned.
  - Measure. Determine if the simulation provided enemy status to the collection system. Determine if the training audience requested, tasked, executed collection, and tracked the collection process.

  JSIMS requirement: *JSIMS AAR system must be able to collect information from the training audience's real world C4I systems, merge it with observations, and support the trainer's/observer's assessment of the training status of this task.*

b. Tasking Action:

- Issue Plans and Orders (OP 5.4.2).

  - Condition. The capability must exist for the training audience C^{4}I system(s), such as Contingency Theater Air Planning System (CTAPS), to interface with and transmit the Air Tasking Order (ATO) to the JSIMS-provided training environment.
  - Measure. Determine if the training environment received the ATO, if it was in the correct format, and within acceptable time limits to execute.

  JSIMS requirement: *The JSIMS AAR system must support this data gathering process.*

c. Execution Actions:

- Gain and Maintain Air Superiority in Theater of Operations
  (OP1.5.3).

  - Condition. The capability must exist to provide weather
    conditions that could influence the ability to conduct
    Offensive Counter Air Operations and for the surface threats
    to be masked by the terrain.
  - Measure. Determine friendly attrition rate, enemy units
    engaged, enemy units downed, and when these events
    occurred.

JSIMS requirement: *JSIMS must represent these conditions and its AAR system must be able to report on the results. For training, AAR, and post-exercise analysis, the JSIMS AAR system must track and provide graphical and formatted report feedback.*

- Conduct Air Interdiction of Operational Forces/Targets (OP
  3.2.5.1)

  - Condition. Some examples are for the air interdiction aircraft
    to terrain mask; to face a realistically deployed enemy force;
    to be detected by enemy early warning systems; "experience"
    an electronic countermeasures (ECM) environment; and for
    "smart" ordinance to "see" the target.
  - Operational Measure. In 3 days destroy 50 percent of the
    enemy POL (Petroleum, Oil, and Lubricants) storage
    capability.
  - Simulation Measure. Determine the route of flight, enemy
    threats encountered during the flight, timing of events,
    bombing results, tactics used, and other factors contributing to
    either "success" or "failure."

d. New Course of Action. In addition, the ACC has been tasked to assess a new course of action (COA) to provide continuous presence over the opposing capital where U.S. hostages are being held to support JSOTF operations. At various points during the event, the event is halted, reset, and alternative COA executed.

JSIMS requirement: *JSIMS must support data gathering during COA execution, provide off-line assessment of the COA, and be able to reset the situation to the appropriate point in the scenario to further refine the COA. In support of each reset, JSIMS must support the staff rebrief/situation update for each staff element in the training audience, the control staff, and the AAR staff.*

3. Step Three: Evaluation: the After Action Review. Notional Exercise, like any joint exercise, requires two types of AARs, each with a specific purpose.

The first provides feedback to training *audience*–the ACC commander and his staff in this example—regarding the degree to which training objectives were achieved. The second provides feedback to exercise planners and the technical control/support team regarding the quality of the simulated environment and the degree to which it properly supported achievement of training objectives.

JSIMS requirement: *JSIMS must include a comprehensive AAR function that addresses the detailed requirements of both types of AARs. JSIMS must be able to support After Action Review events that may occur as soon as 1 hour following the event. JSIMS must provide support for briefing to both the supporting event staff and the training audience on either start of event (STARTEX) or situation updates following a time jump. JSIMS must also support briefings that may occur immediately following a scenario fast forward or scenario reset.*

   a. Training AAR. The training AAR should help the commander determine whether the training objectives were met, identify lessons learned, and identify changes to improve staff processes. In reviewing the air interdiction training objective outcome, it is determined, for notional purposes, that the training objective was met even though the operational objective (destroying 50 percent of the POL storage in 3 days) was not. During the course of the AAR, the mission will be visually replayed, showing route of flight, timing, enemy threat reaction, and weather. During replay, specific shortcomings in the battle staff planning processes become obvious:

   - Planners did not coordinate with intelligence, resulting in failure to identify changes in the target area SAM threat;
   - Insufficient Suppression of Enemy Air Defenses (SEAD) support was planned, resulting in two F-16 losses to SAMs;
   - Insufficient KC-135's were tasked, resulting in two F-15's being unable to post-strike refuel.

JSIMS requirement: *JSIMS must provide "play back" capabilities to support training and analysis requirements.*

   b. Technical AAR. The technical AAR answers questions such as the following:

   - How reliable were the simulations?
   - Were any training deficiencies caused by the training environment?
   - How well did the C^4I systems interface with the models?

- Were the databases correct?
- Was the training environment ready at exercise start?

During the technical AAR it is determined that even though the training audience met its interdiction training objective, several technical problems inhibited overall training. Two typical examples follow:

- Model reliability did not meet the time synchronization (simulation time and real-world time) goal of being within 5 minutes of each other. This lack of synchronization caused a delay in the battle staff receiving timely results on several missions at critical times in their planning process.

- The CTAPS practical "dress rehearsal" database was not removed at the start of the exercise, resulting in confusion over the actual number of in-theater aircraft.

JSIMS requirement: *JSIMS AAR system must capture system performance data and exercise control over events and observations. The system must be able to correlate operational training events and technical events to support both training assessment, feedback, and exercise design improvement. Following the event, JSIMS must support storing appropriate scenario, campaign, and AAR data in the resource repository for access by other warfighters, the analysis and acquisition communities, and the education community. JSIMS must provide support so that the National War College can replay the scenario, including command decisions and planning materials, to support a class in contingency planning.*

F. Conclusion.

This notional example illustrates the planning, execution, and feedback process that a CINC-level exercise would follow. It provides only a sample of representative functional JSIMS requirements.

APPENDIX A

REFERENCES

DOD Dictionary of Military and Associated Terms, 23 March 1994.

DOD Directive 5000.59, Modeling and Simulation Management, 4 January 1994.

DOD Directive 5000.59-P, Modeling and Simulation Master Plan, October 1995.

DOD Final DOD M&S VV&A Instruction (5000.61), 19 April 1996.

DOD Glossary of Modeling and Simulations Terms, 29 August 1995.

CJCSI 3500.01, Joint Training Policy for the Armed Forces of the United States, 21 November 1994.

CJCSI 3500.02, Joint Training Master Plan for the Armed Forces of the United States, 8 December 1995.

CJCSM 3500.03, Joint Training Manual for the Armed Forces of the United States, 1 June 1996.

CJCSM 3500.04, Universal Joint Task List, Version 2.1.

Joint Publication 1-01, Joint Publication System, Joint Doctrine, and Joint Tactics, Techniques, and Procedures Development Program, 30 July 1992.

Joint Vision 2010. America's Military: Preparing for the Future, May 1996.

Joint Warfighting Center, Joint Vision 2010 Implementation Master Plan (Draft), 1 October 1996.

Joint Warfighting Center, Concept for Future Joint Operations (Initial Draft), 23 September 1996.

Joint Memorandum of Agreement (MOA) on the Joint Simulation System, 30 June 1994.

Joint Program Office, JSIMS Technical Requirements Document, 18 July 1996

Joint Warfighting Center, Operational Requirements Document for JSIMS, 1 February 1996

Joint Warfighting Center, Draft JSIMS Concept of Operations, Summer 1996.

Joint Warfighting Center, Concept for Joint Exercise Management Program (JEMP) III (Draft), 21 October 1996.

Mission Need Statement (MNS) for Joint Simulation System, 22 July 1994.

Department of Air Force, Operational Requirements Document for National Air and Space [Warfare] Model, 21 May 1996.

Department of Army, Operational Requirements Document for Warfighter's Simulations 2000, rev August 1996.

Department of the Navy, Space and Naval Warfare Systems Command, Enhanced Naval Warfare Gaming System (ENWGS), January 1992.

United States Atlantic Command, Joint Training Plan, FY 97-00, 28 October 1996.

United States European Command, Joint Training Plan, FY 97-98, 24 April 1996.

United States Pacific Command, Joint Training Plan, FY 97-02, Volume One, 1 May 1996.

United States Southern Command, Joint Training Plan, FY 98-00, undated.

United States Space Command, Joint Training Plan.

United States Special Operations Command, Joint Training Plan, FY 98-00, 17 September 1996.

United States Transportation Command, Joint Training Plan, FY 98, May 1996.

APPENDIX B

ACRONYM LIST

AAR	After Action Review
ACC	Air Component Command
ADS	Advanced Distributed Simulation
ALSP	Aggregate Level Simulation Protocol
AOR	Area of Responsibility
APB	Acquisition Program Baseline
ATO	Air Tasking Order
AV	Aviation
AWACS	Airborne Warning and Control System
C4I	Command, Control, Communications, Computers, and Intelligence
CAX	Computer-Assisted Exercise
CGF	Computer Generated Forces
CIM	Corporate Information Management
CINC	Commander in Chief
CONOPS	Concept of Operations
CTAPS	Contingency Theater Automated Planning System
DIA	Defense Intelligence Agency
DISA	Defense Information Systems Agency
DMA	Defense Mapping Agency
DMSO	Defense Modeling and Simulation Office
DOD	Department of Defense
DODIIS	Department of Defense Intelligence Information System
EA	Executive Agent
EADSIM	Extended Air Defense Simulation
ECM	Electronic Countermeasures
ENWGS	Enhanced Naval Warfare Gaming System
EUCOM	US European Command
FOC	Full Operational Capability
FSCL	Fire Support Coordination Line
FTX	Field Training Exercise
GCC	Ground Component Command
IOC	Initial Operational Capability
ISR	Intelligence, Surveillance, and Reconnaissance
JAARS	Joint After Action Review System
JCATS	Joint Conflict and Tactical Simulation
JCM	Joint Conflict Model
JCMMS	Joint Conceptual Model of the Mission Space
JDISS	Joint Deployable Intelligence Support System
JEMP	Joint Exercise Management Program

JESS	Joint Exercise Support System
JFC	Joint Forces Command
JMET	Joint Mission Essential Task
JMETL	Joint Mission Essential Task List
JOA	Joint Operating Area
JROC	Joint Required Operational Capability
JSB	Joint Synthetic Battlespace
JSIMS	Joint Simulation System
JSPS	Joint Strategic Planning System
JSR	Joint Strategy Review
JTC	Joint Training Confederation
JTF	Joint Task Force
JTLS	Joint Theater Level Simulation
JTS	Joint Tactical Simulation
JV	Joint Venture
JWARS	Joint Warfare System
JWCA	Joint Warfighting Capability Assessment
LRC	Lesser Regional Contingency
M&S	Modeling and Simulation
MEF	Marine Expeditionary Farce
MFC	Marine Force Command
MLS	Multi-level Security
MOOTW	Military Operations Other Than War
MOUT	Military Operations on Urban Terrain
MRC	Major Regional Contingency
NCA	National Command Authority
NCC	Naval Component Combat
NE	Notional Exercise
NGO	Non-governmental Organizations
OP	Operational
OPFOR	Opposing Forces
ORD	Operational Requirements Document
PACOM	US Pacific Command
POL	Petroleum, Oil, and Lubricants
PPBS	Planning, Programming ,and Budgeting System
PVO	Private Volunteer Organization
R&D	Research and Development
RSTA	Reconnaissance, Surveillance, and Target Acquisition
SAFOR	Semi-automated Forces
SAM	Surface-to-Air Missile
SCI	Sensitive Compartmented Information
SE	Synthetic Environment
SEAD	Suppression of Enemy Air Defenses
SOCOM	US Special Operations Command
SOTF	Special Operations Task Force

SOUTHCOM	US Southern Command
SPACECOM	US Space Command
ST	Strategic-Theater
STOW	Synthetic Theater of War
TA	Tactical Level
TACMS	Tactical Missile System
TACWAR	Tactical Warfare Simulation
TAFIM	Technical Architecture Framework for Information Management
TF	Task Force
TLAM	Tactical Land Attack Missile
TMD	Theater Missile Defense
TOC	Tactical Operations Center
TRANSCOM	US Transportation Command
TRM	Technical Reference Model
TTL	Tactical Training Lists
UCC	Unified Combat Command
UCCATS	Urban Combat Computer Assisted Training System
UJT	Universal Joint Task
UJTL	Universal Joint Task List
VV&A	Verification, Validation, and Accreditation
WARSIM	Warfighter Simulation
WOC	Wing Operations Center

APPENDIX C

GLOSSARY

Accreditation

The official certification that a model or simulation is acceptable for use for a specific purpose.

Advanced Distributed Simulation (ADS)

A set of disparate models or simulations operating in a common synthetic environment in accordance with the Distributed Interactive Simulation (DIS) standards. The ADS may be composed of three modes of simulation: live, virtual and constructive which can be seamlessly integrated within a single exercise. See also: live simulation; virtual simulation; constructive simulation.

Aggregate Level Simulation Protocol (ALSP)

A family of simulation interface protocols and supporting infrastructure software that permit the integration of distinct simulations and wargames. Combined, the interface protocols and software enable large-scale, distributed simulations and wargames of different domains to interact at the combat object and event level. The most widely known example of an ALSP confederation is the Joint/Service Training Confederation (CBS, AWSIM, RESA, TACSIM, CSSTSS) which has provided the backbone to many large, distributed, simulation-supported exercises. Other examples of ALSP confederations include confederations of analytical models that have been formed to support US Air Force, US Army, and US TRANSCOM studies. (Aggregate Level Simulation Protocol Technical Specification, July 1992). Note: JECEWSI and MTWS are also now included in the 1995 ALSP Confederation.

Aggregation

The ability to group entities while preserving the effects of entity behavior and interaction while grouped. (See also definition of disaggregation.)

Architecture

An architecture is the structure of components in a program/system, their interrelationships, and principles and guidelines governing their design and evolution over time.

Authoritative Representation

Authoritative representations are models, algorithms, and data that have been developed or approved by a source which has accurate technical knowledge of the entity or phenomenon to be modeled and its effects.

Battlespace

Battlespace refers both to the physical environment in which the simulated warfare will take place and the forces that will conduct the simulated warfare. All elements which support the front line forces (e.g., logistics, intelligence) are included in this definition of battlespace.

Computer Generated Forces (CGF)

A generic term used to refer to computer representations of forces in simulations which attempts to model human behavior sufficiently so that the forces will take some actions automatically (without requiring man-in-the-loop interaction). Also referred to as Semi-automated Forces (SAFOR).

Computer Simulation

A dynamic representation of a model, often involving some combination of executing code, control/display interface hardware, and interfaces to real-world equipment.

Constructive Model or Simulation

Models and simulations that involve simulated people operating simulated systems.

Data

A representation of facts, concepts, or instructions in a formalized manner suitable for communication, interpretation, or processing by humans or by automatic means.

Data Exchange Standard

Formally defined protocols for the format and content of data messages used for interchanging data between networked simulation and/or simulator nodes used to create and operate a distributed, time and space coherent synthetic environment. Current standards are ALSP and DIS PDUs.

Data Standardization

The process of documenting, reviewing, and approving unique names, definitions, characteristics and representations of data according to established procedures and conventions.

Data Validation

The documented assessment of data by subject area experts and its comparison to known values. Data user validation is an assessment as appropriate for use in an intended model. Data producer validation is an assessment within stated criteria and assumptions.

Data Verification, Validation, & Certification (VV&C)

The process of verifying the internal consistency and correctness of data, validating that it represents real-world entities appropriate for its intended purpose or an expected range of purposes, and certifying it as having a specified level of quality or as being appropriate for a specified use, type of use, or range of uses. The process has two perspectives: producer and user process.

Disaggregation

The ability to represent the behavior of an aggregated unit in terms of its component entities. If the aggregate representation did not maintain state representations of the individual entities, then the decomposition into the entities can only be notional.

Environment

The texture or detail of the domain, that is terrain relief, weather, day, night, terrain cultural features (such as cities or farmland), sea states, etc.); (2) the external objects, conditions, and processes that influence the behavior of a system (such as terrain relief, weather, day/night, terrain cultural features, etc.).

Environmental Representation

An authoritative representation of all or a part of the natural or man-made environment.

Extensibility

The ability of a data structure to accommodate additional values or iterations of data over time without impacting its initial design.

Fast Time

(l) Simulated time with the property that a given period of actual time represents more than that period of time in the system being modeled; for example, in a simulation of plant growth, running the simulation for one second may result in the model advancing time by one full day; that is, simulated time advances faster than actual time. (2) The duration of activities within a simulation in which simulated time advances faster than actual time. Contrast with: real time; slow time.

Federation

A system of interacting models and/or simulations, with supporting infrastructure, based on a common understanding of the objects portrayed in the system.

Fidelity

(1) The similarity, both physical and functional, between the simulation and that which it simulates. (2) A measure of the realism of a simulation. (3) The degree to which the representation within a simulation is similar to a real-world object, feature, or condition in a measurable or perceivable manner.

Granularity

Fidelity and level of detail of objects and environment. See also: resolution.

Ground Truth

The actual facts of a situation, without errors introduced by sensors or human perception and judgment.

High Level Architecture (HLA)

Major functional elements, interfaces, and design rules, pertaining as feasible to all DOD simulation applications, and providing a common framework within which specific system architectures can be defined.

Human Factors

A body of scientific facts about human characteristics. The term covers all biomedical and psychological considerations; it includes, but is not limited to, principles and applications in the areas of human engineering, personnel selection, training, life support, job performance aids, and human performance evaluation.

Interaction

The explicit action taken by one object toward another object or geographical area.

Joint M&S

Representations of joint and Service forces, capabilities, equipment, materiel, and services used in the joint environment or by two, or more, Military Services.

Legacy Model

A model developed in the past which is still in use that was not implemented using today's standards (e.g., software, communication, DIS, ALSP, etc.). Some legacy models have been modified with interfaces to some of the current standards extending their usefulness and interoperability with newer, standards based models.

Live Simulation

A simulation involving real people operating real systems. The categorization of simulation into live, virtual, and constructive is problematic, because there is no clear division between these categories. The degree of human participation in the simulation is infinitely variable, as is the degree of equipment realism. This categorization also suffers by excluding a category for simulated people working real equipment (e.g., smart vehicles).

Live, Virtual, and Constructive Simulation

The categorization of simulation into live, virtual, and constructive is problematic, because there is no clear division between these categories. The degree of human participation in the simulation is infinitely variable, as is the degree of equipment realism. This categorization also suffers by excluding a category for simulated people working real equipment (e.g., smart vehicles).

M&S Infrastructure

An underlying base or foundation; the basic facilities, equipment, and installations needed for the functioning of a system. An M&S infrastructure would consist of M&S systems and applications, communications, networks, architectures, standards and protocols, information resource repositories, etc.

M&S Interoperability

The ability of a model or simulation to provide services to and accept services from other models and simulations, and to use the services so exchanged to enable them to operate effectively together.

Mission Space

Mission space refers to the entities, actions, and interactions that must be represented to produce credible simulations of the specific mission area being addressed. Mission space includes all elements (e.g., logistics, intelligence, manufacturing) which support the simulation and which are required to achieve the desired goals and objectives.

Model

A physical, mathematical, or otherwise logical representation of a system, entity, phenomenon, or process.

Modeling and Simulation (M&S)

The use of models, including emulators, prototypes, simulators, and stimulators, either statically or over time, to develop data as a basis for making managerial or technical decisions. The terms "modeling" and "simulation" are often used inter-changeably.

ModSAF

Modular Semi-Automated Forces are a class of CGF utilizing a modular software structure in which model components have well-defined and documented interfaces allowing run-time reconfiguration of model behavior to develop generalized, and more sophisticated, representations of reactive behaviors and missions. ModSAF provides an open architecture that is expected to be the starting point for future extensions of SAFOR capabilities.

Object

A fundamental element of a conceptual representation that reflects the real-world at levels of abstraction and resolution appropriate for a simulation. for any given value of time, the state of an object is defined as the enumeration of all its attribute values.

Object-Based

A software design methodology adhering to only some of the properties of object oriented software; for example, Ada does not support inheritance, a key property of object oriented systems, therefore Ada is often referred to as an object based language. See: object oriented.

Object-Oriented

A software design methodology that when applied to DIS results in the battlefield being represented by objects, where objects encapsulate the methods or procedures associated

with the object and where objects communicate with other objects by message passing. Examples of battlefield objects are platoons (unit level), tanks (platform level), main guns (component or module level), and gun barrels (part level). One of the main benefits of an object oriented approach is the inherent modularity; e.g., to change a tank model only the tank object must be changed. See also: object based.

Object-Oriented Language

A language which best suits an object-oriented decomposition of software and which provides the capability to implement classes and objects. Directly supports data abstraction and classes, and provides additional support for inheritance as a means of expressing hierarchies of classes.

Object-Oriented Programming

Use of a programming system that results in programs organized as cooperative collections of objects, each of which represents an instance of some class, and whose classes are members of class hierarchies as defined by the inheritance mechanism.

Open System

A system in which the components and their composition are specified in a non-proprietary environment, enabling competing organizations to use these standard components to build competitive systems. There are three perspectives on open systems: portability - the degree to which a system component can be used in various environments, interoperability - the ability of individual components to exchange information, and integration - the consistency of the various human-machine interfaces between an individual and all hardware and software in the system.

Protocol

A set of rules and formats (semantic and syntactic) that determine the communication behavior of simulation applications.

Real-Time

In modeling and simulation, simulated time advances at the same rate as actual time; for example, running the simulation for one second results in the model advancing time by one second. Contrast with: fast time; slow time.

Real-Time System

A system that computes its results as quickly as they are needed by a real-world system. Such a system responds quickly enough that there is no perceptible delay to the human

observer. In general use, the term is often perverted to mean within the patience and tolerance of a human user.

Real-World

The set of real or hypothetical causes and effects that simulation technology attempts to replicate. When used in a military context, the term is synonymous with real battlefield to include air, land, and sea combat. Syn: real battlefield.

Resolution

The degree of detail and precision used in the representation of real-world aspects in a model or simulation. See also: granularity.

Scalability

The ability of a distributed simulation to maintain time and spatial consistency as the number of entities and accompanying interactions increase.

Scenario

(1) Description of an exercise ("initial conditions" in military terms). It is part of the session database which configures the units and platforms and places them in specific locations with specific missions. (2) An initial set of conditions and time line of significant events imposed on trainees or systems to achieve exercise objectives. See: field exercise.

Semi-automated Forces (SAFOR)

See Computer Generated Forces.

Simulation

A method for implementing a model over time.

Simulation Environment

(1) Consists of the operational environment surrounding the simulation entities including terrain, atmospheric, bathospheric and cultural information. (2) All the conditions, circumstances, and influences surrounding and affecting simulation entities including those stated in (1).

Simulation Fidelity

Refers to the degree of similarity between the training situation and the operational situation that is being simulated.

Simulation Time

(1) a simulation's internal representation of time. Simulation time may accumulate faster, slower, or at the same pace as sidereal time. (2) The reference time (e.g., Universal Coordinated Time) within a simulation exercise, this time is established ahead of time by the simulation management function and is common to all participants in a particular exercise.

Slow Time

The duration of activities within a simulation in which simulated time advances slower than actual time.

Standard

A rule, principle, or measurement established by authority, custom, or general consent as a representation or example.

Stimulate

To provide input to a system in order to observe or evaluate the system's response.

Synthetic Battlefield

One type of synthetic environment.

Synthetic Environment (SE)

Internetted simulations that represent activities at a high level of realism from simulations of theaters of war to factories and manufacturing processes. These environments may be created within a single computer or a vast distributed network connected by local and wide area networks and augmented by super-realistic special effects and accurate behavioral models. They allow complete visualization of and total immersion into the environment being simulated.

System

A collection of components organized to accomplish a specific function or set of functions.

Time Step Models

Dynamic models in which time is advanced by a fixed or independently-determined amount to a new point in time, and the states or status of some or all resources are updated as of that new point in time. Typically these time steps are of constant size, but they need not be.

Unified Combatant Command (UCC)

One of the unified combatant commands established by the President of the United States according to Title 10, United States Code. Also referred to as Combatant Commands. (UCCs include: US Atlantic Command (abbreviated as USACOM); US Central Command (abbreviated as USCENTCOM); US European Command (abbreviated as USEUCOM); US Pacific Command (abbreviated as USPACOM); US Southern Command (abbreviated as USSOUTHCOM); US Space Command (abbreviated as USSPACOM); US Special Operations Command (abbreviated as USSOCOM); US Strategic Command (abbreviated as USSTRATCOM); and, US Transportation Command (abbreviated as USTRANSCOM)).

Validation

The process of determining the extent to which a model or simulation is an accurate representation of the real-world from the perspective of the intended use(s) of the model or simulation.

Verification

The process of determining that model or simulation implementation accurately represents the developer's conceptual description and specification. Verification also evaluates the extent to which the model or simulation has been developed using sound and established software engineering techniques.

Virtual Simulation

A simulation involving real people operating simulated systems. Virtual simulations inject human-in-the-loop (HITL) in a central role by exercising motor control skills (e.g., flying an airplane), decision skills (e.g., committing fire control resources to action), or communication skills (e.g., as members of a C4I team).

APPENDIX D

SUPPORTING DATA

Encl. 1 – Use Case Workshop Schedule

Encl. 2 – Use Case Worksheet (blank)

Encl. 3 – Use Case Matrix Instructions

Encl. 4 – JSIMS Consolidated Use Cases

Encl. 5 – Acquisition Program Baseline Matrices

Encl. 6 – UJTL Analytical Products

    6.1 – UJTL Identified Requirements for the Simulation Environment
    6.2 – Analysis of Potential Training Objectives

Encl. 7 – Use Case Derived Graphs and Tables

Encl. 8 – C4I Interface Requirements

Encl. 9 – Other Required Interfaces

Encl. 10 – Data on Existing Support for Simulation-Assisted Events

Encl. 11 – Future Training Concepts

Encl. 12 – Individual Use Case Index

Encl. 13 – Requirements Traceability and Cross Reference Matrix

Encl. 14 – JWFC Baseline Models Capabilities Matrix

Use Case Workshop Schedule

Date	Functional Requirements Working Group	Location	Executive Agent/Host
14-15 Aug	USMC	Quantico	M&S Management Office
21 Aug	C2	Reston, VA	CDR John Daly, DISA
22-23 Aug	Intelligence	Bolling AFB	Mr. Bob Vitrikas, DIA
26-27 Aug	Air Force	Bedford, MA	LtCol Tom Kiss, AFAMS
28-29 Aug	Navy	NDC, Norfolk	Mr. Guy Purser, NDC
9 Sep	Army	Carlisle Barracks	Ms. Annette Ratzenberger
10 Sep	CINC reps	JWFC, Ft. Monroe	LTC Doug Martin, JWFC
17-18 Sep	Consolidated	JPO, Orlando	LTC Gus Liby, JPO
10 Oct	NDU	NDU, Washington	COL Everett, NDU
			LTC Hyde, NDU

Use Case Worksheet (Blank)

This document is an example of the Use Case Matrix Worksheet used in use case workshops to obtain statements of requirements. The matrix's 29 columns together represent one way in which users plan to use JSIMS.

Instructions for completing the worksheet are given in Enclosure 3.

Projected Event Characteristics

NAME:

OFFICE:

NUMBER:

CASE:

USE CASE WORK SHEET

PROJECTED EVENT CHARACTERISTICS

PROJECTED EVENTS	SCENARIO	PHASE OF OPS	THEATER	No. SIDES	EVENT DURATION	TRNG/USER AUDIENCE	USER LOCATION	TRAINING TIER	EVENT OBJECTIVES	FUTURE TNG CONCEPTS
Training Education Dev/Eval Doc Planning Analysis Other (specify)	2 MRC 1 MRC JTF MOOTW Other	Mobilize Deploy Employ Sustain Redeploy			No. of Days & Hours per day	CINC & Staff CJTF & Staff JTF Component DIV/ WING/ BG Bn/Squadron Co/ Flight Individual Crew Other Audience Size Representation: 1. Level Commanded 2. Number 3. Level Tracked	1. One 2. Many	1. Service 2. Component - Interoperability 3. US Joint 4. US - Multinational 5. Joint - Multinational 6. Intergovernment interagency.	List From: UJTL CJT JMETL TTL Other	

Desired JSIMS Support

Version 2.2
21-Aug-96

NAME:

CASE:

				DESIRED SUPPORT					PERFORMANCE FEEDBACK	
Visual- ization	C4I/ISR INTERFACE	OTHER INTERFACES	OPERATIONAL ENVIRONMENT	SECURITY LEVEL	TRAINER OPERATOR	SIMULATION TIME	TECHNICAL REQ'TS	PRE-EVENT PLANNING	EXECUTION	POST EVENT
1. 2D 2. 3D 3. None Why ?	GCCS STACCS JMCIS CTAPS SOFPARS CAPS Other	List by Type: Examples: Flight Simulators Live Ranges Ships at Sea Msn Planning Sys etc.	Characteristics: List from UJTL V 3.1 Sec 3 Data Type: 1. Historical 2. Climat. Extremes 3. Observed 4. Forecast Data Format: 1. Dynamic 2. Interactive 3. Static Representation: 1. Generic 2. Real 3. Real - displaced		1. Organic 2. External Support 3. Combination	1. Slower than - Real Time 2. At Real Time 3. Faster Than - Real Time Continuity 1. Continuous 2. Jump Forward 3. Step Back 4. Simultaneity 5. Other	Examples: Database build in 4 Days Ability to Modify Object Attributes on Site	Examples: Automated AAR Collection Plan Links to Joint & Service Tng Systems	Examples: Interactive Rpt to Trainer On-line Cues to Trainer Rule Based If "A" occurs Then Rpt "B" to Trainer etc.	Examples: Post Processing Automated Graphics etc.

Data on Existing Support

NAME:

CASE:

DATA ON EXISTING SUPPORT

	EVENT PREPARATION		EXECUTION	POST EVENT ACTIVITY					
PLANNING & COORD	DATA BASE & TESTING	EVENT SPIN-UP	EVENT CONTROL	SPIN DOWN	AAR & REPORTING	COST DRIVERS	SUPPORT CONSTRAINTS	DESIRED IMPROVEMENTS
Cumulative Time & Man-hours	Cumulative Time Man-hours &	Cumulative Time Man-hours &	Cumulative Time & Man-hours	Cumulative Time Man-hours &	Cumulative Time Man-hours &	Examples: Travel Equipment Communications etc.	Examples: Time Facilities Equipment Communications etc.	Examples: Reduce Planning Time Less Dependence on Facilities Less Dependence on Sim Controllers etc.

3

General Comments

NAME:

CASE:

GENERAL COMMENTS

Remarks

Encl. 2

USE CASE MATRIX INSTRUCTIONS

1. Introduction

The JSIMS Mission Needs Statement (MNS) states that "The mission of the Joint Simulation System is to provide readily available, operationally valid computer simulated environments for use by the CINCs, their components, other joint organizations, and the Services to jointly educate, train, develop doctrine and tactics, formulate and assess operational plans, assess warfighting situations, define operational requirements, and provide operational input into the acquisition process."

The JSIMS functional requirement process provides a way to integrate the CINC and Service requirements to support JSIMS development and to help derive an acquisition program baseline.

The purpose of the Use Case matrix is to provide the JSIMS user a way to constructively characterize classes of JSIMS use and to give the JSIMS developer a means to focus and sequence development.

The use case matrix also provides a common framework for all classes of users to discuss their requirements.

2. Overview

A Use Case is simply a way in which a user plans to use JSIMS.

The matrix has twenty-nine columns. A Use Case is one row with all the columns filled in. The definition of a use case is much more generalized than a specific exercise. For instance, an Ulchi Focus Lens-type exercise could be one example of a Use Case for MRC-level, CINC-staff training exercises. Ultimately, the proposed use cases will be consolidated and "binned" to support JSIMS development. The relationship between the columns will drive this binning process; the columns in the matrix should not be filled in independently of each other. The twenty-nine columns together represent one way in which you plan to use JSIMS; as such, there should be an operational thread running through the columns which define each Use Case.

The matrix attempts to capture more than just how we use modeling and simulation today. JSIMS does not reach FOC until 2003, so users should think in terms of future requirements.

If you feel that this matrix does not afford you the opportunity to fully define your simulation needs, then you are encouraged to add comments, attached articles etc. as necessary.

The questionnaire is "UNCLASSIFIED". Do not include or attach classified information.

3. Instructions

The following paragraphs describe how the questionnaire should be completed. The questionnaire is divided into three pages, each describing a different aspect of current and projected use of JSIMS. These instructions follow the sequence of the questionnaire and are identified by the titles used in the questionnaire.

3.1 Identification

Enter your name, office symbol, and telephone number on the first page and your name on all subsequent pages. Also enter the case name to be used when referring to this Use Case. (for example, "Ulchi Focus Lens" could be a case name)

3.2 Projected Event Characteristics

This page of the questionnaire documents projected simulation needs. We are trying to estimate how and with what frequency JSIMS will be used. Please project or estimate where definite requirements are lacking.

3.2.1 Projected Event

What kind of event is this? Examples are **training, education, develop/evaluate doctrine, planning, and analysis**.

3.2.2 Scenario

What is a category of the scenario used in the event? Examples are **2MRC, 1MRC, JTF, and MOOTW**.

3.2.3 Phase of Ops

What phases of operations are do you need JSIMS to support? Please list as many as are appropriate; list in order of importance to the event. Examples are **Mobilization, Deployment**, **Employment**, **Sustainment**, and **Redeployment**.

3.2.4 Theater

How big is the "play box" for this event? Where is it? Examples: **North East Asia, National Training Center,** or **US Embassy in Monrovia.**

3.2.5 No. Sides

How many sides participate in the event (i.e. friendly, enemy, neutrals, coalitions etc.)?

3.2.6 Event Duration

How many calendar days elapse from START EX to END EX? How many hours are there in a typical event day? (Note: the "pace" of the event relative to real time is captured in a later column.)

3.2.7 Trng/User Audience

What is the most common level of training audience or user? Enter as many as necessary in order of priority. Examples are **CINC & staff, CJTF & staff, JTF component, DIV/Wing/BG, Bn/Squadron**, and **Co/Flight**. Identify the echelon and number of units

managed by the training audience and the level at which the units are tracked (e.g., tail number, hull number, battalion)

3.2.8 User Location

Are the users of the event at one location or at many locations? Note any unique information associated with the sites (ships at sea, etc.)

3.2.9 Training Tier

What is the tier of training? (Source: Joint Training Plan) Examples are **Service**, **Component-Interoperability**, **US Joint**, **US-Multinational**, **Joint-Multinational**, and **Interagency-Intergovernment**.

3.2.10 Event Objectives

What are the functional requirements that drive this event?. Entries should correspond to established JMETLs, TTL etc. and include the source (e.g. UJTL Version 2.1 etc.).

3.2.11 Future Tng Concepts

Please explain emerging training concepts that you think are pertinent to JSIMS development. For example, you might need to train users of a large distributed network of sensors and weapon platforms where the elements would normally be employed as a single integrated weapon system, but fielding the entire system for training purposes would be cost prohibitive.

3.3 DESIRED JSIMS SUPPORT

This page of the questionnaire lets you indicate your likely needs for JSIMS support.

3.3.1 Visualization

What type of visualization of the battlefield is required? Options are: **None, 2-dimensional (e.g., a map),** or **3-dimensional.** Explain your selection.

3.3.2 C4I/ISR Interface

Which C4I systems must interface with JSIMS? Please list each system in order of priority.

3.3.3 Other Interfaces

What other live, virtual, or constructive systems must interface with JSIMS?. Please list each system in order of priority, beginning with the highest priority first. Examples are **Flight Simulators; Live Ranges; Ships at Sea; Synthetic Image Generation Systems;** and **Mission Planning Systems**.

3.3.4 Operational Environment

Which environmental factors must replicated in JSIMS? Please use the Physical, Military, and Civil environments described in Section 3 of the UJTL and include the source (e.g. UJTL Version 2.1 etc.). Next, specify what kind of environmental data you need by specifying the type, format, and representation you need. If specific requirements do not exist, then select conditions that illustrate your evolving needs.

3.3.5 Security Level

What are your security requirements?

3.3.6 Trainer / Operator

How will JSIMS be operated? By **organic** operators or by **external support** operators?

3.3.7 Simulation Time

How fast will your event run in relation to wall clock time? Does time advance continuously? If time is discontinuous, does it **jump forward**, **step back**, or exhibit some **other** discontinuity?

3.3.8 Performance Feedback

What types of data collection and display functions are needed to support mission rehearsal, training, AAR etc.

3.3.9 Pre Event

What feedback functions are needed before execution of the event? Examples are **Automated AAR Collection Plan**, and **Links to Joint and Service Training Systems**.

3.3.10 Execution

What feedback functions are needed during the execution of the event? Examples are **Interactive report to the trainee**, **On-lines cues to the trainee**, and **Rule-based reports to trainee**.

3.3.11 Post Event

What feedback functions are needed after the execution of the event? Examples are **Post-processing**, and **Automated graphics**.

3.4 Data on Existing Support

This page of the questionnaire describes current event support. For each item, please indicate
- how much time is spent (calendar days and man-hours),
- which activity drives the cost for the item, and
- how JSIMS could improve the cost and time for the item.

3.4.1 Event Preparation - Planning & Coordination

This item represents the time and level of effort needed to plan and coordinate an event using existing systems.

3.4.2 Event Preparation - Database & Testing

This item represents the time and level of effort needed for database development and testing.

3.4.3 Event Preparation - Event Spin-Up

This item represents the time and level of effort needed for the last minute preparations for an event. Actives include positioning and training control group personnel, setting up and configuring equipment, installing and testing communications etc.

3.4.4 Execution

This item represents the time and level of effort needed to conduct and control an event. Man-hour calculations should include both the exercise control group and the training audience.

3.4.5 Post Event Activity - Event Spin-Down

This item represents the time and level of effort needed to return personnel to their home stations and equipment, facilities, and computers to their normal status.

3.4.6 Post Event Activity - AAR & Reporting

This item represents the time and level of effort needed to perform AAR and post event reporting.

3.4.7 Cost Drivers

What are the cost drivers for this event?

3.4.8 Support Constraints

What are constraints in supporting an event?

3.4.9 Desired Improvements

What features of JSIMS would improve your ability to support an event?

USE CASE MATRIX DEFINITIONS

<u>Constructive Model or Simulation</u> Models and simulations that involve simulated people operating simulated systems. Real people stimulate (make inputs) to such simulations, but are not involved in determining the outcomes.

<u>Cost Drivers</u> The most costly activities associated with conducting events (e.g. exercises, analysis, mission rehearsal, test & evaluation etc.).

<u>Crisis Action Planning</u> The time-sensitive planning for the deployment, employment, and sustainment of assigned and allocated forces and resources that occurs in response to a situation that may result in actual military operations. Crisis action planers base their plan on the circumstances that exist at the time planning occurs.

<u>Cumulative Time</u> Within the scope of this questionnaire, cumulative time is taken to mean the successive addition of time committed to accomplishing specific activities (i.e. planning and coordination etc.). For example, the cumulative time committed to three, two-day conferences is six days.

<u>Doctrine</u> Fundamental principles by which the military forces or elements thereof guide their actions in support of national objectives. It is authoritative but requires judgment in application.

<u>Execution</u> The process of actually carrying out an event. For example the execution phase of an exercise, as defined here, is delineated by "START EX" and "END EX" times.

<u>Exercise</u> A military maneuver or simulated wartime operation involving planning, preparation, and execution. It is carried out for the purpose of training and evaluation. It may be a combined, joint, or single-Service exercise, depending on participating organizations.

<u>Event</u> Any activity that JSIMS may be called on to support.

<u>Event Objectives</u> A statement that describes the purpose to be achieved in accomplishing an event (e.g. training objectives, mission rehearsal etc.).

<u>Event Spin-Down</u> Actions taken to return facilities, personnel, equipment, computers, and communications to their normal state following the completion of an event.

<u>Event Spin-Up</u> Completion of last minute preparations for an event. Examples include positioning and training control group personnel, setting up and configuring equipment installing and testing communications etc.

Joint Mission Essential Task List A CINC's list of mission essential capabilities derived from the UJTL and expressed in terms of the tasks, conditions, and standards that the CINC considers essential in accomplishing his assigned missions.

Joint Force Integrator Task List The JFITL is comprised of joint mission essential tasks selected from the UJTL by two or more combatant commanders. An example is USACOM, in its role as the Joint Force Integrator (JFI). USACOM will use inputs from the combatant commands and the Services to develop a JFITL, which the CJCS will approve. USACOM's JFITL will provide the basis for their establishment of a joint training program.

Live Simulation A simulation involving real people operating real systems.

Military Education The systematic instruction of individuals in subjects which will enhance their knowledge of the science and art of war.

Military Training The instruction of personnel ;to enhance their capacity to perform specific military functions and tasks; the exercise of one or more military units conducted to enhance their combat readiness.

Operational Environment Defines the conditions under which mission essential tasks are performed. The UJTL divides environmental factors into three broad categories: Physical, Military, and Civil. Each category is in turn refined in a step wise process. For example, Cultural factors are divided into six categories including National Character; National Character is divided into five categories including National Discipline and so on.

Operational Evaluation The test and analysis of a specific end item or system, insofar as practicable under service operating conditions, in order to determine if quantity production is warranted considering: a. the increase in military effectiveness to be gained; and b. its effectiveness as compared with currently available items or systems, consideration being given to: (1) personnel capabilities to maintain and operate the equipment; (2) size, weight, and location considerations; and (3) enemy capabilities in the field.

Performance Feedback The process of planning, collecting, and using information gleaned from an event to further accomplishment of defined objectives. For example: the development of a data collection plan prior to an exercise; providing instruction to participants/students based on real-time exercise feed-back; the collection of data for After-Action-Review; and post exercise data reduction, formatting, and graphics development are all necessary components in providing performance feedback.

Planning A coordinated staff procedure used by a commander to determine the best method of accomplishing assigned tasks and to direct the action necessary to accomplish his mission.

Simulation Time The time used by a simulation to govern the rate at which simulated activities transpire. Simulation time has two attributes: it's value (e.g. 1513), and the rate at which it advances (e.g. game speed). The rate of advance in normally expressed as the ratio of game speed to real time. For example, at 2:1 the simulation advances two hours for every hour of real time (i.e. the simulation runs faster than real time); at 1:1 simulation time and real time advance at the same rate (i.e. the simulation runs at real time); at 1/2:1 simulation time advances 1/2 hour for every hour of real time (i.e. the simulation runs slower than real time). Both simulation time, and its rate of advance are adjustable in joint legacy training simulations.

Test A test of an item, system of materiel, or technique conducted under simulated or actual operational conditions to determine whether the specified military requirements of characteristics are satisfied.

Training Tier A classification system applied to CINC sponsored exercises to balance regional engagement and joint training objectives. Tiers I through VI equate to: (1) US Service Training; (2) US Component Interoperability Training; (3) US Joint Training; (4) US/Multinational Interoperability Training; (5) Joint/Multinational Training; and (6) Interagency/Intergovernmental Training respectively.

Universal Joint Task List The UJTL is an interoperability tool to help combatant commands construct their JMETL. Once clear statements of requirements are communicated between combatant commands and resource providers, joint training events can be effectively developed, resources efficiently applied, and force readiness accurately assessed. The UJTL provides a common language. It is designed to be a menu of capabilities (mission-derived tasks with associated conditions and standards) that may be selected by a joint force commander to accomplish the assigned mission. Once identified as essential to mission accomplishment, the tasks are reflected within the command JMETL.

Virtual Simulation A simulation involving real people operating simulated systems. Virtual simulations inject human-in-the-loop (HITL) in a central role by exercising motor control skills (e.g. flying an airplane), decision skills (e.g. committing fire control resources to action), or communication skills (e.g. as members of a C4I team.

USE CASE MATRIX GLOSSARY

AAR	After-Action Review
AWSIM	Air Warfare Simulation
BG	Brigade
Bn	Battalion
CAPS	Consolidated Aerial Port System
CBS	Corps Battle Simulation
CINC	Commander of a combatant command
CJT	Common Joint Tasks
CJTF	Commander, Joint Task Force
Co	Company
CTAPS	Contingency Theater Automated Planning System
C4I	Command, Control, Communications, Computer, and Intelligence
DIV	Division
GCCS	Global Command and Control System
ISR	Intelligence, Surveillance, and Reconnaissance
JECG	Joint Exercise Control Group
JFITL	Joint Force Integrator Task List
JMCIS	Joint Maritime Command Information System
JMETL	Joint Mission Essential Task List
JSIMS	Joint Simulation System
JTF	Joint Task Force
LAN	Local Area Network
M&S	Modeling and Simulation
MOOTW	Military Operations Other Than War
MRC	Major Regional Contingency
SOFPARS	Special Operations Forces Planning and Rehearsal System
STACCS	Standard Theater Army Command and Control System
TTL	Tactical Task List
UJTL	Uniform Joint Task List

JSIMS Consolidated Use Cases

The following matrices show the range and focus of the seven consolidated use cases, vis-à-vis the 29 columns of the Use Case Worksheet. The matrices reflect the results of the analysis discussed previously in Section II, paragraph 1c of this document. The column entitled "Training Tier" was deleted because much of the collected information was deemed unusable.

JSIMS Consolidated Use Cases

Priority	Type Event	Scenario	Phase	Theater	No. Sides	Event Duration	User	Training Audience Number	Level Commanded
				Training - CINC/JTF/Component/Agency - LRC and Higher Scenario					
1	Training	LRC and Above	All; Focus on Employ, Sustain, Deploy (in user defined priority order)	MRC: Korea & SWA; All Regional LRCs: e.g. Cuba, Haiti, Balkans, Mediterranean	Range: 2-60; Focus: Up to 30 (90%)	Range: 24 hours 1-21 days; Focus: 24 hours 1-10 days (76%)	Range: CINC to Sp Teams; Focus: CINC to JTF Comp, DIV WG/BG, Agency	Range: 12-2500+; Focus: 200-1350;	Range: CINC to Platform; Focus:JTF Comp & DIV/WG/BG
				Service/Agency Level Training					
2	Training	LRC and Above; Focus on both 1MRC & LRC; Increase interest in MOOTW	Mobilize, Deploy, Employ, Sustain; Focus on Employ, Sustain, Deploy, (in priority order)	MRC: Korea & SWA;All Rgl LRCs: e.g. Somalia, Balkans; MOOTW: e.g. Haiti, Nambia	Range: 2-60; Focus: Up to 30 (90%)	Range: 24 hours 1-10 days; Focus: 24 hours 1-5 days (67%)	Range: JTF to Individual; Focus: DIV/WG/BG and Below (81%)	Range: 1-500; Focus: 25-150	Range: DIV/WG/BG to Sp Team ; Focus: DIV/WG/BG to Sp Team
				Planning & Analysis					
3	Planning & Analysis	LRC to 1MRC; Focus on LRC	All; Focus on Employ, Sustain, Deploy (in user defined priority order)	MRC: Korea & SWA;All Rgl LRCs: e.g. Cuba, Bosnia; MOOTW: e.g. Haiti, Trng Sites	Range: 2-18; Focus: Up to 18 (100%)	Range: 24 hours 1-10 days; Focus: 24 hours 1-10 days (88%)	Range: CINC to Special Teams; Focus: CINC to JTF Comp (67%)	10-30	Range: CINC, JTF, Platform; Focus: CINC, JTF, Platform
				Crew Team Mission Rehearsal					
4	Mission Rehearsal	MOOTW/Task	Deploy, Employ(with Entry Ops)	SWA MRC, Caribbean	Range: 25; Focus: Up to 25 (100%)	Range: 24 hours 1-7 days; Focus: 24 hours 1-7 days (100%)	Range: Bn/SQ/Ship to Individual/Crew; Focus: Individual/Crew	50-80	Range: Aircraft, Sp Teams & Indiv; Focus: Aircraft, Sp Teams & Indiv
				Professional Military Education					
5	Education	LRC and above, MOOTW; Focus on 1MRC	All; Focus on Employ, Deploy, Sustain (in user defined priority order)	MRC: Korea & SWA;All Rgl LRCs: e.g. Notional, Balkans; MOOTW: e.g. Haiti, Nambia	Range: 2-36; Focus: Up to 30 (85%)	Range: 12 hours 1-15 days; Focus: 12 hours 1-5 days (82%)	Range: CINC to Individual; Focus: JTF Comp to Bn/SQ/Ship (74%)	25-150	Range:JTF Comp to Sp Teams; Focus:JTF Comp & Bn,SQ,Ship
				Senior Officer Strategic Level Education					
6	Education	Strategic(NCA), Concurrent MRC, LRC and MOOTW	All; Focus on Employ, Sustain, Deploy (in user defined priority order)	Global, MRC: Korea & SWA; MOOTW: e.g. Russia	Range: 4-30; Focus: Up to 30 (100%)	Range: 8 hours 1-10 days; Focus: 8 hours 1-10 days (100%)	Range: CINC(NCA) to JTF; Focus: CINC (83%)	50-525	Range: CINC to DIV/WG/BG; Focus:CINC to DIV/WG/BG
				Doctrine Development					
7	Doctrine Evaluation & Development	LRC and Above, MOOTW, Tactical Operations to Exchange of Special Weapons	All; Focus on Employ, Deploy, Sustain	Global (Special Weapons); MRC: SWA	Range: 2-4; Focus: Up to 4 (100%)	Range: 24 hours 1-10 days; Focus: 8 hours 1-10 days (86%)	Joint and Service Doctrine Centers	10-35	Range: CINC to Platform; Focus:Bn,SQ,Ship, Aircraft, Platform

JSIMS Consolidated Use Cases

Priority	Number Commanded	Level Tracked	User Location	Level of Trng Obj	Future Concepts	Visualization	C4I/ISR Interface	Other Interface	Operational Environment Characteristics
Training - CINC/JTF/Component/Agency - LRC and Higher Scenario									
1	Range: 1-231; Focus:1-20 - 66%; 1-50 -80%;	Range: DIV/WG/BG to High Lvl Indiv; Focus: Bn/SQ/Ship, AC	Range: Many; Focus: Many (93%)	See attached UJTL matrix; Focus on ST and OP;	See Attached	Range: 2D-3D; Focus: 2D (55%)	DISA Information Pending	See Attached	See attached environment matrix; Focus: All conditions required
Service/Agency Level Training									
2	Range: 1-500; Focus:1-30 - 69%, 1-100 -84%;	Range: Bn/Sq/Ship to Indiv; Focus: Bn/SQ/Ship & Platform	Range: Many; Focus: One (73%)	See attached UJTL matrix; Focus on OP and TA	See Attached	Range: 2D-3D; Focus: 2D (71%)	DISA Information Pending	See Attached	See attached environment matrix; Focus: All conditions required
Planning & Analysis									
3	Range: 1-20; Focus:1-20 -100%;	Range: Aircraft to Bn/Sq/Ship; Focus: Bn/SQ/Ship, Aircraft & Platform	Range: Many; Focus: Many (62%)	See attached UJTL matrix; Focus on SN and TA	See Attached	Range: 2D-3D; Focus: 2D (66%)	DISA Information Pending	See Attached	See attached environment matrix; Focus: All conditions required
Crew Team Mission Rehearsal									
4	Range: 1-50; Focus:1-50 -100%	Range: Aircraft to Indiv; Focus: Aircraft to Indiv	Range: Many (50%) One (50%); Focus: Both	See attached UJTL matrix; Focus on TA	See Attached	Range: 2D-3D; Focus: 3D (100%)	DISA Information Pending	See Attached	See attached environment matrix; All Required; Focus: Military & Physical
Professional Military Education									
5	Range: 1-50; Focus:1-40 - 86%	Range: CINC to Sp Team; Focus: DIV/WG/BG to Bn/SQ/Ship	Range: Many; Focus: Many (67%)	See attached UJTL matrix; Focus on ST, OP, & TA	See Attached	Range: 2D-3D; Focus: 2D (90%)	DISA Information Pending	See Attached	See attached environment matrix; Focus: All conditions required
Senior Officer Strategic Level Education									
6	Range: 1-50; Focus:1-10 - 100%	Range: CINC to Indiv; Focus: Bde to Co/Flt	Range: Many (50%) One (50%); Focus: Both	See attached UJTL matrix; Focus on SN	See Attached	Range: 3D-2D; Focus: 2D (75%)	DISA Information Pending	See Attached	See attached environment matrix; All Required; Focus: civil environ
Doctrine Development									
7	Range: 1-50; Focus:1-10 - 60%	Range: Bn/SQ/Ship to Platform; Focus: Bn/SQ/Ship to Platform	Range: Many; Focus:One (75%)	N/A	See Attached	Range: 2D-3D; Focus: 2D (57%)	DISA Information Pending	See Attached	See attached environment matrix; All Required; Focus: physical & military

JSIMS Consolidated Use Cases

Priority	Operational Environment			Security Level	Trainer/Operator	Sim Time	PreEvent	Performance Feedback	PostEvent
	Data Type	Data Format	Representation					Execution	
Training - CINC/JTF/Component/Agency - LRC and Higher Scenario									
1	Historical - 61%; Climate Ext - 32%; Observed - 58%; Forecast - 47%	Dynamic - 61%; Interactive - 65%; Static - 6%	Gen -16%; Real - 65%; Displaced Real -32%; Nuc Eff -6%; Obscurants -6%; Virtual -3%	TS (10%, 3%SIOP, 3% SCI); S (33%); MLS (57%)	Range: Organic-Combination; Focus: Combo (66%)	Variable (81%); Step&Jump (75%)	Automated Collection (100%), Linked to Jnt&Ser Sys (26%)	Interactive Rpt to Trnr (100%), Online Cues to Trnr Sys (75%), Rule Based (58%)	Automated Graphics (93%), Post Processing (71%) Automated AAR (39%)
Service/Agency Level Training									
2	Historical - 50%; Climate Ext - 6%; Observed - 33%; Forecast - 28%	Dynamic - 61%; Interactive - 44%; Static - 11%	Generic -11%; Real -61%; Displaced Real -17%; RF/EM Environ -6%	TS (6%); S (33%); U(33%) MLS (28%)	Range: Organic-Combination; Focus: Organic (58%)	Variable (40%); Real Only (50%); Step&Jump (50%); StepBack (40%)	Automated Collection (86%), Linked to Jnt&Ser Sys (28%)	Interactive Rpt to Trnr (100%), Online Cues to Trnr Sys (100%), Rule Based (42%)	Automated Graphics (67%), Post Processing (56%) Automated AAR (78%)
Planning & Analysis									
3	Historical - 75%; Climate Ext - 25%; Observed - 50%; Forecast - 75%	Dynamic - 63%; Interactive -37%; Static - 37%	Real -75%; Nuc Eff -12%	TS (14%); S (28%); MLS (57%)	Range: Organic-Combination; Focus: Organic (55%)	FasterThanReal (67%); Continuity: All capabilities required equally	Automated Collection (79%), Linked to Jnt&Ser Sys (75%)	Interactive Rpt to Trnr (33%), Online Cues to Trnr Sys (16%), Rule Based (84%)	Automated Graphics (83%), Post Processing (67%) Automated AAR (17%)
Crew Team Mission Rehearsal									
4	Observed - 50%; Forecast -100%	Dynamic - 100%; Interactive - 100%; Static - 50%	Real -100%	TS/SCI (50%); MLS (50%)	Range: Organic; Focus: Organic (100%)	Variable (50%); Real Only (50%); Step&Jump (100%)	No data	No data	Automated AAR (67%) Replay Using 3D (33%)
Professional Military Education									
5	Historical - 50%; Climate Ext - 17%	Dynamic - 50%; Interactive - 42%; Static - 25%	Generic -17%; Real -50%; Displaced Real- 17%	U (50%); S (42%)	Range: Organic-Combination; Focus: Organic (80%)	Variable (30%); RealTimeOnly(30% FasterTReal(50%); Step&Jump (72%)	Automated Collection (100%)	Interactive Rpt to Trnr (88%), Online Cues to Trnr Sys (88%), Rule Based (12%)	Automated AAR (100%), Auto Graphics(75%), Post Processing (88%)
Senior Officer Strategic Level Education									
6	Historical - 75%; Forecast - 50%	Dynamic - 75%; Interactive - 75%; Static - 75%	Generic -25%; Real -100%; Displaced Real- 25%	TS/SCI (25%); S (25%); U(25%) MLS (50%)	Range: Organic-Combination; Focus: Both (50%)	FasterThanReal (75%); Step&Jump (75%)	Automated Collection (100%), Linked to Jnt&Ser Sys (25%)	Interactive Rpt to Trnr (50%), Online Cues to Trnr Sys (50%), Rule Based (50%)	Automated AAR (100%), Auto Graphics(50%), Post Processing (50%)
Doctrine Development									
7	Historical -75%; Observed - 25%	Dynamic - 88%; Interactive -75%	Generic -25%; Real -88%; Displaced Real- 12%	TS/SCI (17%); S (83%)	Range: Organic-Combination; Focus: Combo (76%)	Variable (75%); Step&Jump (63%)	Automated Collection (100%)	Interactive Rpt to Trnr (75%), Online Cues to Trnr Sys (75%), Rule Based (50%)	Automated AAR (50%), Auto Graphics(50%), Post Processing (86%)

JSIMS Consolidated Use Cases

Acquisition Program Baseline Matrices

Although these matrices were developed separately to support an effort under the direction of the Joint Program Office to develop the Acquisition Program Baseline for JSIMS, these matrices add value to this document by expanding the details on some of the information contained in the consolidated use case matrices at Enclosure 4.

Training - CINC / JTF / Component / Agency - Matrix

Use Case Column	Stratification	Description	User Priority
Scenario	LRC and Above	Represent high intensity conflict in a LRC and above. Represent MOOTW.	1
Phase	Mobilize	Represent mobilization as defined in Chapter 1, Joint Pub 5-0, Doctrine for Planning Military Operations	5
	Deploy	Represent deployment as defined in Chapter 1, Joint Pub 5-0, Doctrine for Planning Military Operations (includes entry/exit operations for the Army and maneuver operations for the Navy)	3
	Employ	Represent employment as defined in Chapter 1, Joint Pub 5-0, Doctrine for Planning Military Operations	1
	Sustain	Represent sustainment as defined in Chapter 1, Joint Pub 5-0, Doctrine for Planning Military Operations	2
	Redeployment	Represent redeployment as defined in Chapter 1, Joint Pub 5-0, Doctrine for Planning Military Operations	4
Theatre	small area	Represent a small theater (up to 100,000 km^2)	3
	medium area	Represent a medium theater (100,000 km^2 to 3,000,000 $km^{2)}$)	2
	large area	Represent a large theater (larger than 3,000,000 km2)	1
Sides	two	Represent two theaters simultaneously - one at high and one at low resolution. Model activities between theaters	3
	2 to 30	Permit the representation of multiple sides in an exercise.	1
	More Than 30	Permit the representation of multiple sides in an exercise.	2
Duration	1-5 days	Support an exercise that starts and ends within 1-5 days	2
	6-10 days	Support an exercise that ends within 6-10 days of start	1
	weeks	Support an exercise that ends more than 10 days	3
Audience Size	small	Audience of 0-100	3
	medium	Audience of 100-1000	1
	large	Audience of larger than 1000	2
Level of User	CINC and staff	Lowest level user audience	4
	JTF	Lowest level user audience	3
	JTF Comp	Lowest level user audience	1
	DIV/WG/BG	Lowest level user audience	3
	Bn/SQ/Ship	Lowest level user audience	4
	Co/Flt	Lowest level user audience	4
	Aircraft	Lowest level user audience	4
	Special Teams	e.g. JSOTF, Space Team, Intelligence Collection Manager Lowest level user audience	2
	Individuals	Lowest level user audience	NR
Level Commanded	CINC and staff	Level commanded by lowest level user audience	5
	JTF	Level commanded by lowest level user audience	5
	JTF Comp	Level commanded by lowest level user audience	2
	DIV/WG/BG	Level commanded by lowest level user audience	1
	Bn/SQ/Ship	Level commanded by lowest level user audience	4
	Co/Flt	Level commanded by lowest level user audience	5
	Aircraft	Level commanded by lowest level user audience	5
	Special Teams	Level commanded by lowest level user audience	3
	Platforms	Level commanded by lowest level user audience	4
	Individuals	Level commanded by lowest level user audience	NR
Level Tracked (See Note 1)	DIV/WG/BG	Lowest level tracked in the simulation	5
	Bn/SQ/Ship	Lowest level tracked in the simulation	1
	Co/Flt	Lowest level tracked in the simulation	3
	Aircraft	Lowest level tracked in the simulation	2
	SOF Team	Lowest level tracked in the simulation	5

Training - CINC / JTF / Component / Agency - Matrix

Use Case Column	Stratification	Description	User Priority
	Platform	Lowest level tracked in the simulation	4
	Individuals	Lowest level tracked in the simulation	5
Number Commanded	1-40	Number of units commanded by the training audience	1
	40-200	Number of units commanded by the training audience	2
	>200	Number of units commanded by the training audience	3
Simulation Location	Multiple	Permit distribution of the simulation across multiple geographic locations.	1
	Single	Implement the JSIMS simulation so that it operates in a single geographic location.	2
Training Objectives		See attached matrix	
Future training concepts		See attached	
Visualization		2D visualization required	1
		3D visualization required	2
C4I systems		Pending DISA Information	
Other interfaces	Live	See attached	
	Virtual	See attached	
Physical Environmental Representation	Generic	Represent a generic physical environment	3
	Real	Represent a real physical environment	1
	Real - displaced	Represent a real physical environment physically translated to another geographic location	2
	Nuclear Effects	Represent a real physical environment in a nuclear environment	4
	Smoke & Ob-scurants	Represent a real physical environment in a smoky and or obscured environment	4
	Virtual	Represent a real physical environment in a virtual environment	5
Physical Environment Data Type	Historical	Represent the physical environment with historical averages	1
	Observed	Represent the physical environment as observed in the real world during exercise execution	2
	Forecast	Represent the physical environment as forecast in the real world for some particular time frame	3
	Climate Extremes	Represent the physical environment as climate extremes in the real world for some particular time frame	4
Physical Environment Data Format	Dynamic	Allow the physical environment to change in response to battle-field events	1
	Interactive	Allow the physical environment to change in response to con-troller action	1
	Static	Do not allow the environment to change during the course of the exercise	3
Physical Environment Resolution	High	Support MOOTW training operations; urban operations, etc.	2
	Medium	Training JTF - level training. Key features (e.g., company mo-bility factors, air target locations, etc.) need to be identified and represented.	1
	Low	Sufficient resolution for contextual operations (e.g., a second MRC)	3

Training - CINC / JTF / Component / Agency - Matrix

Use Case Column	Stratification	Description	User Priority
Operational Environment	Physical	Physical aspects of the operational environment that need to be represented. (See matrix)	All conditions required
	Civil	Civil aspects of the operational environment that need to be rep-resented. (See matrix)	All conditions required
	Military	Military aspects of the operational environment that need to be represented. (See matrix)	All conditions required
Security Level	Multiple Security levels	Permit different aspects of JSIMS to operate at different security levels simultaneously.	1
	Secret	Accommodate a SECRET security level required.	2
	Top Secret	Accommodate a TOP SECRET (Collateral, SIOP and SCI)security level required.	3
Trainer/ Operator	Organic	JSIMS operated by organic operators	2
	Combination	JSIMS operated by a combination of organic and external sup-port operators	1
Time Advance	Fast	Permit the simulation to advance time significantly faster than the wall clock.	2
	Real	Permit the simulation to advance time at the same rate as the wall clock.	2
	Variable	Permit the simulation to advance time at a combination of real and faster than real as the wall clock.	1
Time Continuity	Continuous	Simulation time advances continuously	2
	Jump Forward	Simulation time is discontinuous - jump forward in time accommodated	N/R
	Step Back	Simulation time is discontinuous - step back in time accommodated	2
	Step and Jump	Simulation time is discontinuous - jump forward and step back in time accommodated	1
Performance Feedback (Pre-event)	Automated Collection	Automated pre-event data collection is required	1
	Linked	Links to Joint and Service Systems are required	2
Performance Feedback (Execution)	Interactive Report	Interactive report to trainee required during execution	1
	Online Cues	Online Cues to trainee system required during execution	2
	Rule Based	Rule based reports to trainee required during execution	3
Performance Feedback (Post Event)	Automated Graphics	Automated post event graphics generation is required	1
	Post Processing	Post event feedback processing is required	2
	Automated AAR	Post event AAR is required	3

Note 1   Numbers in the "Level Tracked" rows are misleading. These levels should be determined by information requirements of the users' C4I systems.

Service Training Matrix

Service Training			
Use Case Column	**Stratification**	**Description**	**User Priority**
Scenario	LRC and Above; Focus on both 1MRC & LRC; Increase interest in MOOTW	Represent high intensity conflict in a lesser regional conflict and above. Increased emphasis on MOOTW.	1
Phase	Mobilize	Represent mobilization as defined in Chapter 1, Joint Pub 5-0, Doctrine for Planning Military Operations	5
	Deploy	Represent deployment as defined in Chapter 1, Joint Pub 5-0, Doctrine for Planning Military Operations (includes entry/exit operations for the Army and maneuver operations for the Navy)	3
	Employ	Represent employment as defined in Chapter 1, Joint Pub 5-0, Doctrine for Planning Military Operations	1
	Sustain	Represent sustainment as defined in Chapter 1, Joint Pub 5-0, Doctrine for Planning Military Operations	2
	Redeployment	Represent redeployment as defined in Chapter 1, Joint Pub 5-0, Doctrine for Planning Military Operations	4
Theatre	small area	Represent a small theater (up to 100,000 km^2)	3
	medium area	Represent a medium theater (100,000 km^2 to 3,000,000 $km^{2)}$)	2
	large area	Represent a large theater (larger than 3,000,000 km2)	1
Sides	two	Permit the representation of multiple sides in an exercise.	3
	2 to 30	Permit the representation of multiple sides in an exercise.	1
	More Than 30	Permit the representation of multiple sides in an exercise.	2
Duration	1-5 days	Support an exercise that starts and ends within 1-5 days	1
	6-10 days	Support an exercise that ends within 6-10 days of start	2
	weeks	Support an exercise that ends more than 10 days	NR
Audience Size	small	Audience of 0-100	1
	medium	Audience of 100-1000	2
	large	Audience of larger than 1000	NR
Level of User	CINC and staff	Lowest level user audience	NR
	JTF	Lowest level user audience	NR
	JTF Comp	Lowest level user audience	1
	DIV/WG/BG	Lowest level user audience	1
	Bn/SQ/Ship	Lowest level user audience	2
	Co/Flt	Lowest level user audience	NR
	Aircraft	Lowest level user audience	1
	Special Teams	e.g. JSOTF, Space Team, Intelligence Collection Manager Lowest level user audience	1
	Individuals	Lowest level user audience	2
Level Commanded	CINC and staff	Level commanded by lowest level user audience	NR
	JTF	Level commanded by lowest level user audience	NR
	JTF Comp	Level commanded by lowest level user audience	NR
	DIV/WG/BG	Level commanded by lowest level user audience	1
	Bn/SQ/Ship	Level commanded by lowest level user audience	3
	Co/Flt	Level commanded by lowest level user audience	3
	Aircraft	Level commanded by lowest level user audience	3
	Special Teams	Level commanded by lowest level user audience	2
	Platforms	Level commanded by lowest level user audience	NR
	Individuals	Level commanded by lowest level user audience	NR
Level Tracked	DIV/WG/BG	Lowest level tracked in the simulation	NR

Service Training Matrix

Service Training Use Case Column	Stratification	Description	User Priority
(See Note 1)	Bn/SQ/Ship	Lowest level tracked in the simulation	1
	Co/Flt	Lowest level tracked in the simulation	5
	Aircraft	Lowest level tracked in the simulation	5
	SOF Team	Lowest level tracked in the simulation	4
	Platform	Lowest level tracked in the simulation	2
	Individuals	Lowest level tracked in the simulation	3
Number Commanded	1-40	Number of units commanded by the training audience	1
	40-200	Number of units commanded by the training audience	2
	>200	Number of units commanded by the training audience	3
Simulation Location	Multiple	Permit distribution of the simulation across multiple geographic locations.	2
	Single	Implement the JSIMS simulation so that it operates in a single geographic location.	1
Training Objectives		See attached matrix	
Future Training Concepts		See attached	
Visualization		2D visualization required	1
		3D visualization required	2
C4I systems		Pending DISA Information	
Other interfaces	Live	See attached	
	Virtual	See attached	
Physical Environmental Representation	Generic	Represent a generic physical environment	3
	Real	Represent a real physical environment	1
	Real - displaced	Represent a real physical environment physically translated to another geographic location	2
	RF/EM	Represent a real physical environment in aRF/EM environment	4
Physical Environment Data Type	Historical	Represent the physical environment with historical averages	1
	Observed	Represent the physical environment as observed in the real world during exercise execution	2
	Forecast	Represent the physical environment as forecast in the real world for some particular time frame	2
	Climate Extremes	Represent the physical environment as climate extremes in the real world for some particular time frame	3
Physical Environment Data Format	Dynamic	Allow the physical environment to change in response to battlefield events	1
	Interactive	Allow the physical environment to change in response to controller action	2
	Static	Do not allow the environment to change during the course of the exercise	3
Physical Environment Resolution	High	Support MOOTW training operations; urban operations, etc.	2
	Medium	Training: Service level training. Key features (e.g., company mobility factors, air target locations, etc.) need to be identified	1

Service Training Matrix

Service Training			
Use Case Column	**Stratification**	**Description**	**User Priority**
		and represented.	
	Low	Sufficient resolution for contextual operations (e.g., a second MRC)	3
Operational Environment	Physical	Physical aspects of the operational environment that need to be represented. (See matrix)	All conditions required
	Civil	Civil aspects of the operational environment that need to be represented. (See matrix)	All conditions required
	Military	Military aspects of the operational environment that need to be represented. (See matrix)	All conditions required
Security Level	Multiple Security levels	Permit different aspects of JSIMS to operate at different security levels simultaneously.	2
	Unclassified	Accommodate an UNCLASSIFIED security level	1
	Secret	Accommodate a SECRET security level required.	1
	Top Secret	Accommodate a TOP SECRET security level required.	3
Trainer/ Operator	Organic	JSIMS operated by organic operators	1
	Combination	JSIMS operated by a combination of organic and external support operators	2
Time Advance	Fast	Permit the simulation to advance time significantly faster than the wall clock.	3
	Real	Permit the simulation to advance time at the same rate as the wall clock.	1
	Variable	Permit the simulation to advance time at a combination of real and faster than real as the wall clock.	2
Time Continuity	Continuous	Simulation time advances continuously	3
	Jump Forward	Simulation time is discontinuous - jump forward in time accommodated	N/R
	Step Back	Simulation time is discontinuous - step back in time accommodated	2
	Step and Jump	Simulation time is discontinuous - jump forward and step back in time accommodated	1
Performance Feedback (Pre-event)	Automated Collection	Automated pre-event data collection is required	1
	Linked	Links to Joint and Service Systems are required	2
Performance Feedback (Execution)	Interactive Report	Interactive report to trainee required during execution	1
	Online Cues	Online Cues to trainee system required during execution	1
	Rule Based	Rule based reports to trainee required during execution	2
Performance Feedback (Post Event)	Automated Graphics	Automated post event graphics generation is required	2
	Post Processing	Post event feedback processing is required	3
	Automated AAR	Post event AAR is required	1

Note 1　　　　　　　　　　Numbers in the "Level Tracked" rows are misleading. These levels should be determined by information requirements of the users' C4I systems.

Service Training Matrix

Service Training		Description	User Priority
Use Case Column	Stratification		

Planning Analysis Matrix

Planning and Analysis			
Use Case Column	Stratification	Description	User Priority
Scenario	LRC to 1MRC; Focus on LRC	Represent high intensity conflict in a lesser regional conflict (emphasis) and 1 MRC.	1
Phase	Mobilize	Represent mobilization as defined in Chapter 1, Joint Pub 5-0, Doctrine for Planning Military Operations	5
	Deploy	Represent deployment as defined in Chapter 1, Joint Pub 5-0, Doctrine for Planning Military Operations (includes entry/exit operations for the Army and maneuver operations for the Navy)	3
	Employ	Represent employment as defined in Chapter 1, Joint Pub 5-0, Doctrine for Planning Military Operations	1
	Sustain	Represent sustainment as defined in Chapter 1, Joint Pub 5-0, Doctrine for Planning Military Operations	2
	Redeployment	Represent redeployment as defined in Chapter 1, Joint Pub 5-0, Doctrine for Planning Military Operations	4
Theatre	small area	Represent a small theater (up to 100,000 km^2)	3
	medium area	Represent a medium theater (100,000 km^2 to 3,000,000 km$^{2)}$	2
	large area	Represent a large theater (larger than 3,000,000 km2)	1
Sides	two	Permit the representation of multiple sides in an exercise.	2
	2 to 30	Permit the representation of multiple sides in an exercise.	1
	More Than 30	Permit the representation of multiple sides in an exercise.	NR
Duration	1-5 days	Support an exercise that starts and ends within 1-5 days	2
	6-10 days	Support an exercise that ends within 6-10 days of start	1
	weeks	Support an exercise that ends more than 10 days	NR
Audience Size	small	Audience of 0-100	1
	medium	Audience of 100-1000	NR
	large	Audience of larger than 1000	NR
Level of User	CINC and staff	Lowest level user audience	1
	JTF	Lowest level user audience	1
	JTF Comp	Lowest level user audience	NR
	DIV/WG/BG	Lowest level user audience	NR
	Bn/SQ/Ship	Lowest level user audience	NR
	Co/Flt	Lowest level user audience	NR
	Aircraft	Lowest level user audience	NR
	Special Teams	e.g. JSOTF, Space Team, Intelligence Collection Manager Lowest level user audience	2
	Individuals	Lowest level user audience	3
Level Commanded	CINC and staff	Level commanded by lowest level user audience	1
	JTF	Level commanded by lowest level user audience	1
	JTF Comp	Level commanded by lowest level user audience	NR
	DIV/WG/BG	Level commanded by lowest level user audience	NR
	Bn/SQ/Ship	Level commanded by lowest level user audience	NR
	Co/Flt	Level commanded by lowest level user audience	NR
	Aircraft	Level commanded by lowest level user audience	NR
	Special Teams	Level commanded by lowest level user audience	1
	Platforms	Level commanded by lowest level user audience	NR
	Individuals	Level commanded by lowest level user audience	NR
Level Tracked (See Note 1)	DIV/WG/BG	Lowest level tracked in the simulation	NR
	Bn/SQ/Ship	Lowest level tracked in the simulation	3
	Co/Flt	Lowest level tracked in the simulation	3
	Aircraft	Lowest level tracked in the simulation	2
	SOF Team	Lowest level tracked in the simulation	NR

Planning Analysis Matrix

Planning and Analysis			
Use Case Column	Stratification	Description	User Priority
	Platform	Lowest level tracked in the simulation	1
	Individuals	Lowest level tracked in the simulation	NR
Number Commanded	1-40	Number of units commanded by the training audience	1
	40-200	Number of units commanded by the training audience	NR
	>200	Number of units commanded by the training audience	NR
Simulation Location	Multiple	Permit distribution of the simulation across multiple geographic locations.	1
	Single	Implement the JSIMS simulation so that it operates in a single geographic location.	2
Training Objectives		See attached matrix	
Future Training Concepts		See attached	
Visualization		2D visualization required	1
		3D visualization required	2
C4I systems		Pending DISA Information	
Other interfaces	Live	See attached	
	Virtual	See attached	
Physical Environmental Representation	Generic	Represent a generic physical environment	3
	Real	Represent a real physical environment	1
	Real - displaced	Represent a real physical environment physically translated to another geographic location	3
	Nuclear Effects	Represent a real physical environment in aRF/EM environment	2
Physical Environment Data Type	Historical	Represent the physical environment with historical averages	1
	Observed	Represent the physical environment as observed in the real world during exercise execution	2
	Forecast	Represent the physical environment as forecast in the real world for some particular time frame	1
	Climate Extremes	Represent the physical environment as climate extremes in the real world for some particular time frame	3
Physical Environment Data Format	Dynamic	Allow the physical environment to change in response to battlefield events	1
	Interactive	Allow the physical environment to change in response to controller action	2
	Static	Do not allow the environment to change during the course of the exercise	2
Physical Environment Resolution	High	Support MOOTW training operations; urban operations, etc.	2
	Medium	Training: Service level training. Key features (e.g., company mobility factors, air target locations, etc.) need to be identified and represented.	1
	Low	Sufficient resolution for contextual operations (e.g., a second MRC)	3
Operational Environment	Physical	Physical aspects of the operational environment that need to be represented. (See matrix)	All conditions

Planning Analysis Matrix

Planning and Analysis			
Use Case Column	Stratification	Description	User Priority
			required
	Civil	Civil aspects of the operational environment that need to be rep-resented. (See matrix)	All conditions required
	Military	Military aspects of the operational environment that need to be represented. (See matrix)	All conditions required
Security Level	Multiple Security levels	Permit different aspects of JSIMS to operate at different security levels simultaneously.	1
	Secret	Accommodate a SECRET security level required.	2
	Top Secret	Accommodate a TOP SECRET security level required.	3
Trainer/ Operator	Organic	JSIMS operated by organic operators	1
	Combination	JSIMS operated by a combination of organic and external support operators	2
Time Advance	Fast	Permit the simulation to advance time significantly faster than the wall clock.	1
	Real	Permit the simulation to advance time at the same rate as the wall clock.	3
	Variable	Permit the simulation to advance time at a combination of real and faster than real as the wall clock.	2
Time Continuity	Continuous	Simulation time advances continuously	1
	Jump Forward	Simulation time is discontinuous - jump forward in time accommodated	1
	Step Back	Simulation time is discontinuous - step back in time accommodated	1
	Step and Jump	Simulation time is discontinuous - jump forward and step back in time accommodated	1
Performance Feedback (Pre-event)	Automated Collection	Automated pre-event data collection is required	1
	Linked	Links to Joint and Service Systems are required	1
Performance Feedback (Execution)	Interactive Report	Interactive report to trainee required during execution	2
	Online Cues	Online Cues to trainee system required during execution	3
	Rule Based	Rule based reports to trainee required during execution	1
Performance Feedback (Post Event)	Automated Graphics	Automated post event graphics generation is required	1
	Post Processing	Post event feedback processing is required	2
	Automated AAR	Post event AAR is required	3

Note 1   Numbers in the "Level Tracked" rows are misleading. These levels should be determined by information requirements of the users' C4I systems.

Team/Crew Rehearsal Matrix

Team/Crew Rehearsal			
Use Case Column	Stratification	Description	User Priority
Scenario	MOOTW/Task	Represent tasks such as hostage rescue in a MOOTW scenario. ·	1
Phase	Mobilize	Represent mobilization as defined in Chapter 1, Joint Pub 5-0, Doctrine for Planning Military Operations	NR
	Deploy	Represent deployment as defined in Chapter 1, Joint Pub 5-0, Doctrine for Planning Military Operations (includes entry/exit operations for the Army and maneuver operations for the Navy)	2
	Employ (w/ entry operations)	Represent employment as defined in Chapter 1, Joint Pub 5-0, Doctrine for Planning Military Operations	1
	Sustain	Represent sustainment as defined in Chapter 1, Joint Pub 5-0, Doctrine for Planning Military Operations	NR
	Redeployment	Represent redeployment as defined in Chapter 1, Joint Pub 5-0, Doctrine for Planning Military Operations	NR
Theatre	small area	Represent a small theater (up to 100,000 km^2)	2
	medium area	Represent a medium theater (100,000 km^2 to 3,000,000 km$^{2)}$	1
	large area	Represent a large theater (larger than 3,000,000 km2)	3
Sides	two	Permit the representation of multiple sides in an exercise.	NR
	2 to 30	Permit the representation of multiple sides in an exercise.	1
	More Than 30	Permit the representation of multiple sides in an exercise.	NR
Duration	1-5 days	Support an exercise that starts and ends within 1-5 days	2
	6-10 days	Support an exercise that ends within 6-10 days of start	1
	weeks	Support an exercise that ends more than 10 days	NR
Audience Size	small	Audience of 0-100	1
	medium	Audience of 100-1000	NR
	large	Audience of larger than 1000	NR
Level of User	CINC and staff	Lowest level user audience	NR
	JTF	Lowest level user audience	NR
	JTF Comp	Lowest level user audience	NR
	DIV/WG/BG	Lowest level user audience	NR
	Bn/SQ/Ship	Lowest level user audience	NR
	Co/Flt	Lowest level user audience	NR
	Aircraft	Lowest level user audience	1
	Special Teams	e.g. JSOTF, Space Team, Intelligence Collection Manager Lowest level user audience	1
	Individuals	Lowest level user audience	NR
Level Commanded	CINC and staff	Level commanded by lowest level user audience	NR
	JTF	Level commanded by lowest level user audience	NR
	JTF Comp	Level commanded by lowest level user audience	NR
	DIV/WG/BG	Level commanded by lowest level user audience	NR
	Bn/SQ/Ship	Level commanded by lowest level user audience	NR
	Co/Flt	Level commanded by lowest level user audience	NR
	Aircraft	Level commanded by lowest level user audience	1
	Special Teams	Level commanded by lowest level user audience	1
	Platforms	Level commanded by lowest level user audience	NR
	Individuals	Level commanded by lowest level user audience	1
Level Tracked (See Note 1)	DIV/WG/BG	Lowest level tracked in the simulation	NR
	Bn/SQ/Ship	Lowest level tracked in the simulation	NR
	Co/Flt	Lowest level tracked in the simulation	NR
	Aircraft	Lowest level tracked in the simulation	2
	SOF Team	Lowest level tracked in the simulation	1

Team/Crew Rehearsal Matrix

Team/Crew Rehearsal			
Use Case Column	**Stratification**	**Description**	**User Priority**
	Platform	Lowest level tracked in the simulation	NR
	Individuals	Lowest level tracked in the simulation	2
Number Commanded	1-40	Number of units commanded by the training audience	1
	40-200	Number of units commanded by the training audience	NR
	>200	Number of units commanded by the training audience	NR
Simulation Location	Multiple	Permit distribution of the simulation across multiple geographic locations.	1
	Single	Implement the JSIMS simulation so that it operates in a single geographic location.	1
Training Objectives		See attached matrix	
Future training concepts		See attached	
Visualization		2D visualization required	2
		3D visualization required	1
C4I systems		Pending DISA Information	
Other interfaces	Live	See attached	
	Virtual	See attached	
Physical Environmental Representation	Real	Represent a real physical environment	1
Physical Environment Data Type	Forecast	Represent the physical environment as forecast in the real world for some particular time frame	1
	Observed	Represent the physical environment as observed in the real world during exercise execution	2
Physical Environment Data Format	Dynamic	Allow the physical environment to change in response to battlefield events	1
	Interactive	Allow the physical environment to change in response to controller action	1
	Static	Do not allow the environment to change during the course of the exercise	3
Physical Environment Resolution	High	Support MOOTW training operations; urban operations, etc.	1
	Medium	Training: Service level training. Key features (e.g., company mobility factors, air target locations, etc.) need to be identified and represented.	2
Operational Environment	Physical	Physical aspects of the operational environment that need to be represented. (See matrix)	2
	Civil	Civil aspects of the operational environment that need to be rep-resented. (See matrix)	3
	Military	Military aspects of the operational environment that need to be represented. (See matrix)	1
Security Level	Multiple Security levels	Permit different aspects of JSIMS to operate at different security levels simultaneously.	1
	Top Secret/SCI	Accommodate a TOP SECRET security level required.	1
Trainer/ Operator	Organic	JSIMS operated by organic operators	1
Time Advance	Real	Permit the simulation to advance time at the same rate as the	1

Team/Crew Rehearsal Matrix

Team/Crew Rehearsal			
Use Case Column	Stratification	Description	User Priority
		wall clock.	
	Variable	Permit the simulation to advance time at a combination of real and faster than real as the wall clock.	2
Time Continuity	Step and Jump	Simulation time is discontinuous - jump forward and step back in time accommodated	1
Performance Feedback (Post Event)	Automated Graphics	Automated AAR	1
	3D Replay	Replay using 3D graphics	2

Note 1   Numbers in the "Level Tracked" rows are misleading. These levels should be determined by information requirements of the users' C4I systems.

Professional Military Education Matrix

Professional Military Education			
Use Case Column	Stratification	Description	User Priority
Scenario	LRC and above, MOOTW; Focus on 1MRC	Represent high intensity conflict in a lesser regional conflict and above including on MOOTW; emphasis on 1MRC.	1
Phase	Mobilize	Represent mobilization as defined in Chapter 1, Joint Pub 5-0, Doctrine for Planning Military Operations	5
	Deploy	Represent deployment as defined in Chapter 1, Joint Pub 5-0, Doctrine for Planning Military Operations (includes entry/exit operations for the Army and maneuver operations for the Navy)	2
	Employ	Represent employment as defined in Chapter 1, Joint Pub 5-0, Doctrine for Planning Military Operations	1
	Sustain	Represent sustainment as defined in Chapter 1, Joint Pub 5-0, Doctrine for Planning Military Operations	3
	Redeployment	Represent redeployment as defined in Chapter 1, Joint Pub 5-0, Doctrine for Planning Military Operations	4
Theatre	small area	Represent a small theater (up to 100,000 km^2)	3
	medium area	Represent a medium theater (100,000 km^2 to 3,000,000 km^2)	2
	large area	Represent a large theater (larger than 3,000,000 km2)	1
Sides	two	Permit the representation of multiple sides in an exercise.	3
	2 to 30	Permit the representation of multiple sides in an exercise.	1
	More Than 30	Permit the representation of multiple sides in an exercise.	2
Duration	1-5 days	Support an exercise that starts and ends within 1-5 days	1
	6-10 days	Support an exercise that ends within 6-10 days of start	2
	weeks	Support an exercise that ends more than 10 days	3
Audience Size	small	Audience of 0-100	1
	medium	Audience of 100-1000	2
	large	Audience of larger than 1000	NR
Level of User	CINC and staff	Lowest level user audience	NR
	JTF	Lowest level user audience	NR
	JTF Comp	Lowest level user audience	1
	DIV/WG/BG	Lowest level user audience	2
	Bn/SQ/Ship	Lowest level user audience	2
	Co/Flt	Lowest level user audience	NR
	Aircraft	Lowest level user audience	NR
	Special Teams	e.g. JSOTF, Space Team, Intelligence Collection Manager Lowest level user audience	3
	Individuals	Lowest level user audience	3
Level Commanded	CINC and staff	Level commanded by lowest level user audience	NR
	JTF	Level commanded by lowest level user audience	NR
	JTF Comp	Level commanded by lowest level user audience	1
	DIV/WG/BG	Level commanded by lowest level user audience	3
	Bn/SQ/Ship	Level commanded by lowest level user audience	NR
	Co/Flt	Level commanded by lowest level user audience	2
	Aircraft	Level commanded by lowest level user audience	3
	Special Teams	Level commanded by lowest level user audience	3
	Platforms	Level commanded by lowest level user audience	NR
	Individuals	Level commanded by lowest level user audience	NR
Level Tracked (See Note 1)	DIV/WG/BG	Lowest level tracked in the simulation	1
	Bn/SQ/Ship	Lowest level tracked in the simulation	2
	Co/Flt	Lowest level tracked in the simulation	3
	Aircraft	Lowest level tracked in the simulation	4

Professional Military Education Matrix

Professional Military Education			
Use Case Column	Stratification	Description	User Priority
	SOF Team	Lowest level tracked in the simulation	4
	Platform	Lowest level tracked in the simulation	4
	Individuals	Lowest level tracked in the simulation	3
Number Commanded	1-40	Number of units commanded by the training audience	1
	40-200	Number of units commanded by the training audience	2
	>200	Number of units commanded by the training audience	NR
Simulation Location	Multiple	Permit distribution of the simulation across multiple geographic locations.	1
	Single	Implement the JSIMS simulation so that it operates in a single geographic location.	2
Training Objectives		See attached matrix	
Future Training Concepts		See attached	
Visualization		2D visualization required	1
		3D visualization required	2
C4I systems		Pending DISA Information	
Other interfaces	Live	See attached	
	Virtual	See attached	
Physical Environmental Representation	Generic	Represent a generic physical environment	2
	Real	Represent a real physical environment	1
	Real - displaced	Represent a real physical environment physically translated to another geographic location	2
Physical Environment Data Type	Historical	Represent the physical environment with historical averages	1
	Climate Extremes	Represent the physical environment as climate extremes in the real world for some particular time frame	2
Physical Environment Data Format	Dynamic	Allow the physical environment to change in response to battlefield events	1
	Interactive	Allow the physical environment to change in response to controller action	2
	Static	Do not allow the environment to change during the course of the exercise	3
Physical Environment Resolution	High	Support MOOTW training operations; urban operations, etc.	2
	Medium	Training: Service level training. Key features (e.g., company mobility factors, air target locations, etc.) need to be identified and represented.	1
	Low	Sufficient resolution for contextual operations (e.g., a second MRC)	3
Operational Environment	Physical	Physical aspects of the operational environment that need to be represented. (See matrix)	All conditions required
	Civil	Civil aspects of the operational environment that need to be rep-resented. (See matrix)	All conditions required

Professional Military Education Matrix

Professional Military Education			
Use Case Column	**Stratification**	**Description**	**User Priority**
	Military	Military aspects of the operational environment that need to be represented. (See matrix)	All conditions required
Security Level	Unclassified	Accommodate an UNCLASSIFIED security level	1
	Secret	Accommodate a SECRET security level required.	2
Trainer/ Operator	Organic	JSIMS operated by organic operators	1
	Combination	JSIMS operated by a combination of organic and external support operators	2
Time Advance	Fast	Permit the simulation to advance time significantly faster than the wall clock.	1
	Real	Permit the simulation to advance time at the same rate as the wall clock.	2
	Variable	Permit the simulation to advance time at a combination of real and faster than real as the wall clock.	2
Time Continuity	Step and Jump	Simulation time is discontinuous - jump forward and step back in time accommodated	1
Performance Feedback (Pre-event)	Automated Collection	Automated pre-event data collection is required	1
Performance Feedback (Execution)	Interactive Report	Interactive report to trainee required during execution	1
	Online Cues	Online Cues to trainee system required during execution	1
	Rule Based	Rule based reports to trainee required during execution	3
Performance Feedback (Post Event)	Automated Graphics	Automated post event graphics generation is required	3
	Post Processing	Post event feedback processing is required	2
	Automated AAR	Post event AAR is required	1

Note 1   Numbers in the "Level Tracked" rows are misleading. These levels should be determined by information requirements of the users' C4I systems.

Senior Military Education Matrix

Senior Military Education			
Use Case Column	**Stratification**	**Description**	**User Priority**
Scenario	Strategic(NCA), Concurrent MRC, LRC and MOOTW	Represent high intensity conflict in a LRC or one or more MRC with NCA involvement. MOOTW involvement.	1
Phase	Mobilize	Represent mobilization as defined in Chapter 1, Joint Pub 5-0, Doctrine for Planning Military Operations	5
	Deploy	Represent deployment as defined in Chapter 1, Joint Pub 5-0, Doctrine for Planning Military Operations (includes entry/exit operations for the Army and maneuver operations for the Navy)	3
	Employ	Represent employment as defined in Chapter 1, Joint Pub 5-0, Doctrine for Planning Military Operations	1
	Sustain	Represent sustainment as defined in Chapter 1, Joint Pub 5-0, Doctrine for Planning Military Operations	2
	Redeployment	Represent redeployment as defined in Chapter 1, Joint Pub 5-0, Doctrine for Planning Military Operations	4
Theatre	small area	Represent a small theater (up to 100,000 km^2)	3
	medium area	Represent a medium theater (100,000 km^2 to 3,000,000 km$^{2)}$	2
	large area	Represent a large theater (larger than 3,000,000 km2)	1
Sides	two	Represent two theaters simultaneously - one at high and one at low resolution. Model activities between theaters	NR
	30	Permit the representation of multiple sides in an exercise.	1
	More Than 30	Permit the representation of multiple sides in an exercise.	NR
Duration	1-5 days	Support an exercise that starts and ends within 1-5 days	2
	6-10 days	Support an exercise that ends within 6-10 days of start	1
	weeks	Support an exercise that ends more than 10 days	NR
Audience Size	small	Audience of 0-100	2
	medium	Audience of 100-1000	1
	large	Audience of larger than 1000	NR
Level of User	NCA	Lowest level user audience	2
	CINC and staff	Lowest level user audience	1
	JTF	Lowest level user audience	2
	JTF Comp	Lowest level user audience	NR
	DIV/WG/BG	Lowest level user audience	NR
	Bn/SQ/Ship	Lowest level user audience	NR
	Co/Flt	Lowest level user audience	NR
	Aircraft	Lowest level user audience	NR
	Special Teams	e.g. JSOTF, Space Team, Intelligence Collection Manager Lowest level user audience	NR
	Individuals	Lowest level user audience	NR
Level Commanded	CINC and staff	Level commanded by lowest level user audience	3
	JTF	Level commanded by lowest level user audience	3
	JTF Comp	Level commanded by lowest level user audience	NR
	DIV/WG/BG	Level commanded by lowest level user audience	NR
	Bn/SQ/Ship	Level commanded by lowest level user audience	2
	Co/Flt	Level commanded by lowest level user audience	NR
	Aircraft	Level commanded by lowest level user audience	1
	Special Teams	Level commanded by lowest level user audience	3
	Platforms	Level commanded by lowest level user audience	1
	Individuals	Level commanded by lowest level user audience	NR
Level Tracked	DIV/WG/BG	Lowest level tracked in the simulation	1
(See Note 1)	Bn/SQ/Ship	Lowest level tracked in the simulation	1

Senior Military Education Matrix

Senior Military Education			
Use Case Column	Stratification	Description	User Priority
	Co/Flt	Lowest level tracked in the simulation	1
	Aircraft	Lowest level tracked in the simulation	2
	SOF Team	Lowest level tracked in the simulation	NR
	Platform	Lowest level tracked in the simulation	2
	Individuals	Lowest level tracked in the simulation	NR
Number Commanded	1-40	Number of units commanded by the training audience	1
	40-200	Number of units commanded by the training audience	2
	>200	Number of units commanded by the training audience	NR
Simulation Location	Multiple	Permit distribution of the simulation across multiple geographic locations.	1
	Single	Implement the JSIMS simulation so that it operates in a single geographic location.	1
Training Objectives		See attached matrix	
Future Training Concepts		See attached	
Visualization		2D visualization required	1
		3D visualization required	2
C4I systems		Pending DISA Information	
Other interfaces	Live	See attached	
	Virtual	See attached	
Physical Environmental Representation	Generic	Represent a generic physical environment	2
	Real	Represent a real physical environment	1
	Real - displaced	Represent a real physical environment physically translated to another geographic location	2
Physical Environment Data Type	Historical	Represent the physical environment with historical averages	1
	Forecast	Represent the physical environment as forecast in the real world for some particular time frame	2
Physical Environment Data Format	Dynamic	Allow the physical environment to change in response to battlefield events	1
	Interactive	Allow the physical environment to change in response to controller action	1
	Static	Do not allow the environment to change during the course of the exercise	1
Physical Environment Resolution	High	Support MOOTW training operations; urban operations, etc.	3
	Medium	Training: Service level training. Key features (e.g., company mobility factors, air target locations, etc.) need to be identified and represented.	2
	Low	Sufficient resolution for contextual operations (e.g., a second MRC)	1
Operational Environment	Physical	Physical aspects of the operational environment that need to be represented. (See matrix)	2
	Civil	Civil aspects of the operational environment that need to be rep-resented. (See matrix)	1

Senior Military Education Matrix

Senior Military Education			
Use Case Column	Stratification	Description	User Priority
	Military	Military aspects of the operational environment that need to be represented. (See matrix)	2
Security Level	Multiple Security levels	Permit different aspects of JSIMS to operate at different security levels simultaneously.	1
	Unclassified	Accommodate an UNCLASSIFIED security level	2
	Secret	Accommodate a SECRET security level required.	2
	Top Secret/SCI	Accommodate a TOP SECRET/SCI security level required.	2
Trainer/ Operator	Organic	JSIMS operated by organic operators	1
	Combination	JSIMS operated by a combination of organic and external support operators	1
Time Advance	Fast	Permit the simulation to advance time significantly faster than the wall clock.	3
	Real	Permit the simulation to advance time at the same rate as the wall clock.	1
	Variable	Permit the simulation to advance time at a combination of real and faster than real as the wall clock.	2
Time Continuity	Jump Forward	Simulation time is discontinuous - jump forward in time accommodated	2
	Step and Jump	Simulation time is discontinuous - jump forward and step back in time accommodated	1
Performance Feedback (Pre-event)	Automated Collection	Automated pre-event data collection is required	1
	Linked	Links to Joint and Service Systems are required	2
Performance Feedback (Execution)	Interactive Report	Interactive report to trainee required during execution	1
	Online Cues	Online Cues to trainee system required during execution	1
	Rule Based	Rule based reports to trainee required during execution	2
Performance Feedback (Post Event)	Automated Graphics	Automated post event graphics generation is required	2
	Post Processing	Post event feedback processing is required	2
	Automated AAR	Post event AAR is required	1

Note 1 Numbers in the "Level Tracked" rows are misleading. These levels should be determined by information requirements of the users' C4I systems.

Doctrine Development Matrix

Doctrine Use Case Column	Stratification	Description	User Priority
Scenario	LRC and Above, MOOTW, Tactical Operations to Exchange of Special Weapons	Represent LRC and above, include MOOTW and various tactical operations up to and including the exchange of weapons of mass destruction	1
Phase	Mobilize	Represent mobilization as defined in Chapter 1, Joint Pub 5-0, Doctrine for Planning Military Operations	5
	Deploy	Represent deployment as defined in Chapter 1, Joint Pub 5-0, Doctrine for Planning Military Operations (includes entry/exit operations for the Army and maneuver operations for the Navy)	3
	Employ	Represent employment as defined in Chapter 1, Joint Pub 5-0, Doctrine for Planning Military Operations	1
	Sustain	Represent sustainment as defined in Chapter 1, Joint Pub 5-0, Doctrine for Planning Military Operations	2
	Redeployment	Represent redeployment as defined in Chapter 1, Joint Pub 5-0, Doctrine for Planning Military Operations	4
Theatre	small area	Represent a small theater (up to 100,000 km^2)	3
	medium area	Represent a medium theater (100,000 km^2 to 3,000,000 $km^{2)}$)	2
	large area	Represent a large theater (larger than 3,000,000 km2)	1
Sides	two	Represent two theaters simultaneously - one at high and one at low resolution. Model activities between theaters	2
	30	Permit the representation of multiple sides in an exercise.	1
	More Than 30	Permit the representation of multiple sides in an exercise.	NR
Duration	1-5 days	Support an exercise that starts and ends within 1-5 days	2
	6-10 days	Support an exercise that ends within 6-10 days of start	1
	weeks	Support an exercise that ends more than 10 days	NR
Audience Size	small	Audience of 0-100	1
	medium	Audience of 100-1000	NR
	large	Audience of larger than 1000	NR
Level of User	CINC and staff	Lowest level user audience	NR
	JTF	Lowest level user audience	NR
	JTF Comp	Lowest level user audience	3
	DIV/WG/BG	Lowest level user audience	NR
	Bn/SQ/Ship	Lowest level user audience	NR
	Co/Flt	Lowest level user audience	NR
	Aircraft	Lowest level user audience	NR
	Special Teams	e.g. JSOTF, Space Team, Intelligence Collection Manager Lowest level user audience	1
	Individuals	Lowest level user audience	2
Level Commanded	CINC and staff	Level commanded by lowest level user audience	1
	JTF	Level commanded by lowest level user audience	2
	JTF Comp	Level commanded by lowest level user audience	NR
	DIV/WG/BG	Level commanded by lowest level user audience	2
	Bn/SQ/Ship	Level commanded by lowest level user audience	NR
	Co/Flt	Level commanded by lowest level user audience	NR
	Aircraft	Level commanded by lowest level user audience	NR
	Special Teams	Level commanded by lowest level user audience	NR
	Platforms	Level commanded by lowest level user audience	NR
	Individuals	Level commanded by lowest level user audience	NR
Number	1-40	Number of units commanded by the training audience	1

Doctrine Development Matrix

Doctrine Use Case Column	Stratification	Description	User Priority
Commanded			
	40-200	Number of units commanded by the training audience	2
	>200	Number of units commanded by the training audience	NR
Level Tracked (See Note 1)	DIV/WG/BG	Lowest level tracked in the simulation	NR
	Bn/SQ/Ship	Lowest level tracked in the simulation	3
	Co/Flt	Lowest level tracked in the simulation	NR
	Aircraft	Lowest level tracked in the simulation	2
	SOF Team	Lowest level tracked in the simulation	NR
	Platform	Lowest level tracked in the simulation	1
	Individuals	Lowest level tracked in the simulation	NR
Number Commanded	1-10	Number of units commanded by the training audience	1
	1-50	Number of units commanded by the training audience	2
Simulation Location	Multiple	Permit distribution of the simulation across multiple geographic locations.	2
	Single	Implement the JSIMS simulation so that it operates in a single geographic location.	1
Training Objectives		See attached matrix	
Future Training Concepts		See attached	
Visualization		2D visualization required	1
		3D visualization required	2
C4I systems		Pending DISA Information	
Other interfaces	Live	See attached	
	Virtual	See attached	
Physical Environmental Representation	Generic	Represent a generic physical environment	2
	Real	Represent a real physical environment	1
	Real - displaced	Represent a real physical environment physically translated to another geographic location	3
Physical Environment Data Type	Historical	Represent the physical environment with historical averages	1
	Observed	Represent the physical environment as observed in the real world during exercise execution	2
Physical Environment Data Format	Dynamic	Allow the physical environment to change in response to battlefield events	1
	Interactive	Allow the physical environment to change in response to controller action	2
Physical Environment Resolution	High	Support MOOTW training operations; urban operations, etc.	3
	Medium	Training: Service level training. Key features (e.g., company mobility factors, air target locations, etc.) need to be identified and represented.	1
	Low	Sufficient resolution for contextual operations (e.g., a second MRC and WMD exchange)	2
Operational Environment	Physical	Physical aspects of the operational environment that need to be represented. (See matrix)	1

Doctrine Development Matrix

Doctrine Use Case Column	Stratification	Description	User Priority
	Civil	Civil aspects of the operational environment that need to be rep-resented. (See matrix)	2
	Military	Military aspects of the operational environment that need to be represented. (See matrix)	1
Security Level	Top Secret/SCI	Accommodate a TOP SECRET/SCI security level required.	2
	Secret	Accommodate a SECRET security level required.	1
Trainer/ Operator	Organic	JSIMS operated by organic operators	2
	Combination	JSIMS operated by a combination of organic and external support operators	1
Time Advance	Variable	Permit the simulation to advance time at a combination of real and faster than real as the wall clock.	1
Time Continuity	Step and Jump	Simulation time is discontinuous - jump forward and step back in time accommodated	1
Performance Feedback (Pre-event)	Automated Collection	Automated pre-event data collection is required	1
Performance Feedback (Execution)	Interactive Report	Interactive report to trainee required during execution	1
	Online Cues	Online Cues to trainee system required during execution	2
	Rule Based	Rule based reports to trainee required during execution	3
Performance Feedback (Post Event)	Automated Graphics	Automated post event graphics generation is required	2
	Post Processing	Post event feedback processing is required	1
	Automated AAR	Post event AAR is required	2

Note 1   Numbers in the "Level Tracked" rows are misleading. These levels should be determined by information requirements of the users' C4I systems.

UJTL Analytical Products

The UJTL was analyzed from several points of view to identify functional requirements for JSIMS. Enclosures 6.1 and 6.2 provide tabular and graphical data that formed the basis of the analysis. The text below explains the content and significance of each document in this enclosure.

Encl. 6.1 – UJTL Identified Requirements for the Simulation Environment

As previously discussed, the physical, military, and civil characteristics of the environment are key in describing the operational conditions under which military operations and military training occur. There are essentially two issues regarding the degree to which these characteristics should be represented in JSIMS: first, what characteristics of the environment should be modeled; and second, what degree of resolution is required? Analysis of environmental requirements focused on answering the first question by identifying which environmental attributes are required to satisfy user training needs. Once these attributes have been identified, it is envisioned that the Executive Agents, who are the primary source of functional area expertise, will establish the level of environmental resolution required.

The UJTL provides a comprehensive list of coordinated and approved environmental characteristics for use in joint training. Enclosure 6.1 contains a list of these characteristics cross referenced with the seven Consolidated Use Cases. The association of environmental characteristics with specific use cases was developed from available CINC Joint Training Plans and data collated from Service and Agency use case work sheets. Two pieces of information are displayed: the first, shown on the right, is a comprehensive list of the environmental characteristics needed to support each of the seven cases; the second, shown on the left, is the frequency with which a specific characteristic is associated with each specific case.

This data clearly illustrates the **requirement for JSIMS to represent all the environmental characteristics defined in the UJTL**. Furthermore, to be an effective training tool, JSIMS must deliver this capability with Use Case One (CINC/JTF/Component Training). This is among the most strongly supported requirements identified and is a recurring theme, common to the first three cases. By inference, it also has strong design implications. The use of established measures, to assess the performance of tasks under defined conditions is a central theme of AAR and a crucial element of JSIMS support. The UJTL lists establish measures for each combination of defined tasks and conditions. These measures must also be incorporated into JSIMS.

Use Case Environment Identified Requirements

Exercise Plan UJTL Identified Requirements Summary

Exercise Plan Sample Size	1. CINC/JTF/Component Training (25)	2. Service/Agency Level Training (13)	3. Planning and Analysis (8)	4. Crew Team Mission Rehearsal (2)	5. Other Military Education (11)	6. Senior Military Education (2)	7. Doctrine Development (7)	Totals
C 1.1.1	22	7	5	2	9	2	3	50
C 1.1.2	20	2	3	1	7	2	0	35
C 1.1.3	22	7	5	2	9	2	2	49
C 1.1.4	15	1	2	0	6	1	0	25
C 1.2.1	14	4	2	1	4	2	3	30
C 1.2.2	11	3	4	0	2	1	2	23
C 1.2.3	16	4	3	0	4	2	2	31
C 1.2.4	15	5	5	0	4	2	2	33
C 1.2.5	14	2	2	0	1	1	2	22
C 1.3.1	22	7	5	1	9	2	3	49
C 1.3.2	21	7	5	1	9	2	2	47
C 1.3.3	20	7	5	0	8	2	2	44
C 1.3.4	17	3	2	0	6	2	2	32
C 1.4.1	11	2	3	0	1	1	3	21
C 1.4.2	11	2	3	0	0	1	3	20
	251	63	54	8	79	25	31	511
C 2.1.1	18	7	4	0	7	2	1	39
C 2.1.2	18	4	2	0	6	2	1	33
C 2.1.3	18	6	4	0	7	1	1	37

Common UJTL Requirements Determination Matrix

	1. CINC/JTF/Component Training	2. Service/Agency Level Training	3. Planning and Analysis	4. Crew Team Mission Rehearsal	5. Other Military Education	6. Senior Military Education	7. Doctrine Development
C 1.1.1	*	*	*	*	*	*	*
C 1.1.2	*	*	*	*	*	*	
C 1.1.3	*	*	*	*	*	*	*
C 1.1.4	*	*	*		*	*	
C 1.2.1	*	*	*	*	*	*	*
C 1.2.2	*	*	*		*	*	*
C 1.2.3	*	*	*		*	*	*
C 1.2.4	*	*	*		*	*	*
C 1.2.5	*	*	*		*	*	*
C 1.3.1	*	*	*	*	*	*	*
C 1.3.2	*	*	*	*	*	*	*
C 1.3.3	*	*	*		*	*	*
C 1.3.4	*	*	*		*	*	*
C 1.4.1	*	*	*		*	*	*
C 1.4.2	*	*	*			*	*
C 2.1.1	*	*	*		*	*	*
C 2.1.2	*	*	*		*	*	*
C 2.1.3	*	*	*		*	*	*

C									
C	2.1.4	18	7	5	0	8	2	1	41
C	2.1.5	18	7	5	0	7	2	1	40
C	2.2.1	22	7	5	0	7	2	1	44
C	2.2.2	20	7	5	0	8	2	1	43
C	2.2.3	20	8	5	0	8	2	1	44
C	2.2.4	19	7	4	0	8	2	0	40
C	2.2.5	21	5	5	1	8	2	1	43
C	2.2.6	21	5	5	1	8	2	1	43
C	2.2.7	19	4	4	0	7	1	1	36
C	2.3.1	18	6	4	1	8	2	1	40
C	2.3.2	16	2	2	0	6	0	0	26
C	2.4.1	22	6	5	1	8	2	1	45
C	2.4.2	22	6	5	0	7	2	1	43
C	2.4.3	22	6	5	0	7	2	1	43
C	2.4.4	22	5	5	0	7	1	1	41
C	2.4.5	22	5	5	0	7	2	1	42
C	2.4.6	22	5	5	0	7	1	0	40
C	2.5.1	22	3	2	0	7	1	1	36
C	2.5.2	22	3	2	1	7	1	1	37
C	2.5.3	18	3	2	1	6	1	1	32
C	2.5.4	20	2	2	1	6	1	1	33
C	2.6.1	17	6	5	0	7	2	0	37
C	2.6.2	16	6	5	0	8	1	0	36
C	2.6.3	17	6	5	0	7	2	0	37
C	2.6.4	17	6	5	0	7	2	0	37
C	2.6.5	17	6	5	0	7	2	0	37
C	2.6.6	17	6	5	0	7	1	0	36
C	2.6.7	17	6	5	0	7	2	0	37
C	2.6.8	13	6	4	0	7	1	7	38
C	2.7.1	20	7	4	0	7	1	14	53
C	2.7.2	21	20	19	18	17	16	15	126
C	2.7.3	19	18	17	16	15	14	13	112
C	2.7.4	20	19	18	17	16	15	14	119
C	2.7.5	20	19	18	17	16	15	14	119
C	2.8.1	20	19	18	17	17	16	15	122

C								
C	2.1.4	*	*	*		*	*	*
C	2.1.5	*	*	*		*	*	*
C	2.2.1	*	*	*		*	*	*
C	2.2.2	*	*	*		*	*	*
C	2.2.3	*	*	*		*	*	*
C	2.2.4	*	*	*		*	*	
C	2.2.5	*	*	*	*	*	*	*
C	2.2.6	*	*	*	*	*	*	*
C	2.2.7	*	*	*		*	*	*
C	2.3.1	*	*	*	*	*	*	*
C	2.3.2	*	*	*		*		
C	2.4.1	*	*	*	*	*	*	*
C	2.4.2	*	*	*		*	*	*
C	2.4.3	*	*	*		*	*	*
C	2.4.4	*	*	*		*	*	*
C	2.4.5	*	*	*		*	*	*
C	2.4.6	*	*	*		*	*	
C	2.5.1	*	*	*		*	*	*
C	2.5.2	*	*	*	*	*	*	*
C	2.5.3	*	*	*	*	*	*	*
C	2.5.4	*	*	*	*	*	*	*
C	2.6.1	*	*	*		*	*	
C	2.6.2	*	*	*		*	*	
C	2.6.3	*	*	*		*	*	
C	2.6.4	*	*	*		*	*	
C	2.6.5	*	*	*		*	*	
C	2.6.6	*	*	*		*	*	
C	2.6.7	*	*	*		*	*	
C	2.6.8	*	*	*		*	*	*
C	2.7.1	*	*	*		*	*	*
C	2.7.2	*	*	*	*	*	*	*
C	2.7.3	*	*	*	*	*	*	*
C	2.7.4	*	*	*	*	*	*	*
C	2.7.5	*	*	*	*	*	*	*
C	2.8.1	*	*	*	*	*	*	*

C	Code								Total
C	2.8.2	20	19	18	17	17	16	15	122
C	2.8.3	17	17	16	16	17	16	15	114
C	2.8.4	12	12	11	11	11	10	9	76
C	2.8.5	17	16	15	14	13	12	11	98
C	2.8.6	15	14	13	12	11	10	9	84
C	2.9.1	18	17	16	15	15	14	13	108
C	2.9.2	17	16	15	14	13	12	11	98
C	2.9.3	17	16	15	14	13	12	11	98
C	2.9.4	17	16	15	14	13	12	11	98
C	2.9.5	17	16	15	14	13	12	11	98
C	2.9.6	17	16	15	14	13	12	11	98
C	2.9.7	17	16	15	14	13	12	11	98
		932	467	409	261	479	278	251	3077

C	Code								
C	2.8.2	*	*	*	*	*	*	*	
C	2.8.3	*	*	*	*	*	*	*	
C	2.8.4	*	*	*	*	*	*	*	
C	2.8.5	*	*	*	*	*	*	*	
C	2.8.6	*	*	*	*	*	*	*	
C	2.9.1	*	*	*	*	*	*	*	
C	2.9.2	*	*	*	*	*	*	*	
C	2.9.3	*	*	*	*	*	*	*	
C	2.9.4	*	*	*	*	*	*	*	
C	2.9.5	*	*	*	*	*	*	*	
C	2.9.6	*	*	*	*	*	*	*	
C	2.9.7	*	*	*	*	*	*	*	

C	Code								Total
C	3.1.1	18	2	2	0	3	2	1	28
C	3.1.2	16	1	1	1	3	1	0	23
C	3.1.3	16	3	2	1	4	2	1	29
C	3.2.1	22	1	1	0	6	0	1	31
C	3.2.2	20	1	1	0	6	1	1	30
C	3.2.3	18	1	0	0	6	1	1	27
C	3.2.4	19	5	2	0	7	1	0	34
C	3.2.5	17	1	0	0	6	0	0	24
C	3.2.6	18	1	0	0	7	1	0	27
C	3.3.1	12	1	0	0	3	1	1	18
C	3.3.2	11	2	1	0	5	1	0	20
C	3.3.3	9	0	0	0	3	0	0	12
C	3.3.4	10	1	0	0	3	0	0	14
C	3.3.5	11	1	0	0	3	1	0	16
C	3.3.6	11	3	1	0	3	1	0	19
C	3.3.7	10	1	0	0	3	1	0	15
		238	25	11	2	71	14	6	367

C	Code							
C	3.1.1	*	*	*		*	*	*
C	3.1.2	*	*	*	*	*	*	
C	3.1.3	*	*	*	*	*	*	*
C	3.2.1	*	*	*		*		*
C	3.2.2	*	*	*		*	*	*
C	3.2.3	*	*			*	*	*
C	3.2.4	*	*	*		*	*	
C	3.2.5	*	*			*		
C	3.2.6	*	*			*	*	
C	3.3.1	*	*			*	*	*
C	3.3.2	*	*	*		*	*	
C	3.3.3	*				*		
C	3.3.4	*	*			*		
C	3.3.5	*	*			*	*	
C	3.3.6	*	*	*		*	*	
C	3.3.7	*	*			*	*	

Totals: | 1421 | 555 | 474 | 271 | 629 | 317 | 288 | 3955 |

Notes:
Sixty-eight exercise plans were included.
All plans were used regardless of whether Environmental Condition requirements were specified or not specified.

Encl. 6.2 – Analysis of Potential Training Objectives:

As a joint and service staff training tool, JSIMS must provide training audiences the situational awareness and information flow that are necessary in achieve CAX-related training objectives. The UJTL and derivative documents are the principal source of training objectives. It must be noted that while joint exercises may not be an appropriate training medium for all tasks, JSIMS must support accomplishment of all joint and service related tasks, either implicitly or explicitly, in-order to provide a comprehensive and cohesive training environment. Because of the number of joint and service tasks involved, it may be necessary to spread the development of functional capabilities over time. The purpose of this analysis was to determine if there is a logical order in which capabilities could be implemented.

The UJTL was selected as the baseline for establishing potential training objectives. UJTL tasks were then partitioned into one of five categories, based on their potential as candidate training objectives. Factors considered in the partitioning include: suitability as a training objective; inclusion in one or more Joint Training Plans; frequency with which it surfaced during workshops, and selection as a training objective for a scheduled CAX. Tasks that surfaced in five or more consolidated use cases were treated as the latter.

The three products at Enclosure 6.2 document, explain, and summarize the resulting partitioning. The first document is an comprehensive list of UJTL tasks, cross referenced with the seven consolidated use cases. This information was derived entirely from information provided by the use case workshops. It follows the same format used to describe the correlation between use cases and environmental characteristics above. The second document illustrates the "decision tree" used in the actual partitioning. The last document summarizes the results of the partitioning; tasks are grouped into five sets (circles) in order of decreasing significance for JSIMS representation. Tasks grouped in the first circle (i.e., tasks that have been selected by joint force commanders as training objectives for CAXs) represent the set of tasks required most immediately. Circle five identifies tasks that are *not* appropriate for modeling in JSIMS.

The need for an holistic approach to functional requirements is clearly evident from the first document. However, no supporting or enabling tasks are shown. Adding supporting and enabling tasks to the analysis would result in an exhaustive list that simply reinforces previous observations on the multiplicative nature of the relationships that exist among the tasks. Clearly, this is an effort requiring further work during the course of JSIMS development.

Use Case UJTL Identified Requirements

Exercise Plan UJTL Identified Requirements Summary

Exercise Plan Sample Size	1. CINC/JTF/Component Training (25)	2. Service/Agency Level Training (13)	3. Planning and Analysis (8)	4. Crew Team Mission Rehearsal (2)	5. Other Military Education (11)	6. Senior Military Education (2)	7. Doctrine Development (7)	Totals
SN 1.1	2	0	0	0	2	1	0	5
SN 1.2	2	0	0	0	3	2	0	7
SN 1.3	2	0	0	0	2	1	0	5
SN 1.4	2	0	0	0	2	1	0	5
SN 1.5	2	0	0	0	2	1	0	5
SN 1.6	2	0	0	0	2	1	0	5
SN 1.7	2	0	0	0	2	1	0	5
SN 1.8	2	0	0	0	2	1	0	5
SN 2.1	2	0	2	0	4	2	0	10
SN 2.2	2	0	2	0	4	2	0	10
SN 2.3	1	0	2	0	4	1	0	8
SN 2.4	1	0	1	0	4	1	0	7
SN 2.5	1	0	1	0	4	1	0	7
SN 2.6	1	0	1	0	4	1	0	7
SN 3.1	1	0	0	0	2	2	0	5
SN 3.2	1	0	2	0	3	2	0	8
SN 3.3	1	0	2	0	2	2	0	7
SN 3.4	0	0	0	0	2	2	0	4
SN 3.5	0	0	0	0	2	2	0	4
SN 4.1	1	0	0	0	3	2	0	6
SN 4.2	1	0	0	0	3	1	0	5
SN 4.3	1	0	0	0	1	1	0	3
SN 4.4	1	0	0	0	3	2	0	6
SN 4.5	1	0	0	0	3	2	0	6
SN 5.1	1	0	1	0	3	2	0	7
SN 5.2	1	0	0	0	3	2	0	6
SN 5.3	1	0	0	0	3	2	0	6
SN 5.4	1	0	0	0	3	2	0	6
SN 5.5	1	0	0	0	3	2	0	6
SN 5.6	1	0	0	0	3	1	0	5

Common UJTL Requirements Determination Matrix

	1. CINC/JTF/Component Training	2. Service/Agency Level Training	3. Planning and Analysis	4. Crew Team Mission Rehearsal	5. Other Military Education	6. Senior Military Education	7. Doctrine Development
SN 1.1	*				*	*	
SN 1.2	*				*	*	
SN 1.3	*				*	*	
SN 1.4	*				*	*	
SN 1.5	*				*	*	
SN 1.6	*				*	*	
SN 1.7	*				*	*	
SN 1.8	*				*	*	
SN 2.1	*		*		*	*	
SN 2.2	*		*		*	*	
SN 2.3	*		*		*	*	
SN 2.4	*		*		*	*	
SN 2.5	*		*		*	*	
SN 2.6	*		*		*	*	
SN 3.1	*				*	*	
SN 3.2	*		*		*	*	
SN 3.3	*		*		*	*	
SN 3.4					*	*	
SN 3.5					*	*	
SN 4.1	*				*	*	
SN 4.2	*				*	*	
SN 4.3	*				*	*	
SN 4.4	*				*	*	
SN 4.5	*				*	*	
SN 5.1	*		*		*	*	
SN 5.2	*				*	*	
SN 5.3	*				*	*	
SN 5.4	*				*	*	
SN 5.5	*				*	*	
SN 5.6	*				*	*	

SN	5.7	1	0	0	0	3	1	0	5
SN	6.1	1	0	0	0	1	1	0	3
SN	6.2	1	0	0	0	1	2	0	4
SN	6.3	1	0	0	0	1	2	0	4
SN	6.4	1	0	1	0	1	1	0	4
SN	6.5	1	0	0	0	1	1	0	3
SN	6.6	1	0	0	0	1	2	0	4
SN	6.7	1	0	0	0	0	0	0	1
SN	7.1	0	0	1	0	0	0	0	1
SN	7.2	0	0	0	0	0	0	0	0
SN	7.3	0	0	0	0	0	0	0	0
SN	7.4	0	0	0	0	0	0	0	0
SN	7.5	1	0	0	0	0	0	0	1
SN	7.6	0	0	0	0	0	0	0	0
SN	7.7	1	0	0	0	0	0	0	1
SN	8.1	1	0	0	0	0	0	0	1
SN	8.2	0	0	0	0	0	0	0	0
SN	8.3	0	0	0	0	0	0	0	0
		49	0	16	0	92	56	0	213

SN	5.7	*				*	*		
SN	6.1	*				*	*		
SN	6.2	*				*	*		
SN	6.3	*				*	*		
SN	6.4	*		*		*	*		
SN	6.5	*				*	*		
SN	6.6	*				*	*		
SN	6.7	*							
SN	7.1			*					
SN	7.2								
SN	7.3								
SN	7.4								
SN	7.5	*							
SN	7.6								
SN	7.7	*							
SN	8.1	*							
SN	8.2								
SN	8.3								

ST	1.1	4	0	0	0	6	1	0	11
ST	1.2	2	0	0	0	5	0	0	7
ST	1.3	4	0	0	0	6	1	0	11
ST	1.4	1	0	0	0	4	1	0	6
ST	1.5	2	0	0	0	4	0	0	6
ST	1.6	3	2	0	0	6	1	0	12
ST	2.1	5	1	2	0	6	0	0	14
ST	2.2	5	2	1	0	6	0	0	14
ST	2.3	3	1	1	0	7	0	0	12
ST	2.4	3	1	1	0	7	0	0	12
ST	2.5	1	1	0	0	5	0	0	7
ST	2.6	1	1	0	0	5	0	0	7
ST	3.1	4	1	0	0	5	1	3	14
ST	3.2	5	3	0	0	6	1	3	18
ST	4.1	4	0	0	0	6	1	0	11
ST	4.2	6	0	0	0	6	1	0	13
ST	4.3	6	0	0	0	6	1	0	13
ST	4.4	6	0	0	0	6	1	0	13
ST	5.1	5	0	0	0	6	0	0	11
ST	5.2	6	1	0	0	6	0	0	13
ST	5.3	5	0	0	0	6	0	0	11
ST	5.4	5	0	0	0	6	0	0	11
ST	5.5	5	1	0	0	6	0	1	13
ST	5.6	4	0	0	0	6	0	0	10
ST	6.1	4	1	0	0	5	1	2	13
ST	6.2	9	0	0	0	5	1	2	17
ST	6.3	7	0	0	0	6	1	2	16
ST	6.4	5	0	0	0	6	1	2	14
ST	7.1	1	0	0	0	2	0	0	3
ST	7.2	1	0	0	0	4	0	0	5
ST	8.1	1	0	0	0	1	0	0	2
ST	8.2	1	0	0	0	3	0	0	4
ST	8.3	1	0	0	0	3	0	0	4
ST	8.4	5	0	0	0	3	0	0	8

ST	1.1	*				*	*		
ST	1.2	*				*			
ST	1.3	*				*	*		
ST	1.4	*				*	*		
ST	1.5	*				*			
ST	1.6	*	*			*	*		
ST	2.1	*	*	*		*			
ST	2.2	*	*	*		*			
ST	2.3	*	*	*		*			
ST	2.4	*	*	*		*			
ST	2.5	*	*			*			
ST	2.6	*	*			*			
ST	3.1	*	*			*	*	*	
ST	3.2	*	*			*	*	*	
ST	4.1	*				*	*		
ST	4.2	*				*	*		
ST	4.3	*				*	*		
ST	4.4	*				*	*		
ST	5.1	*				*			
ST	5.2	*	*			*			
ST	5.3	*				*			
ST	5.4	*				*			
ST	5.5	*	*			*		*	
ST	5.6	*				*			
ST	6.1	*	*			*	*	*	
ST	6.2	*				*	*	*	
ST	6.3	*				*	*	*	
ST	6.4	*				*	*	*	
ST	7.1	*				*			
ST	7.2	*				*			
ST	8.1	*				*			
ST	8.2	*				*			
ST	8.3	*				*			
ST	8.4	*				*			

									Total
ST	8.5	1	0	0	0	1	0	0	2
		131	16	5	0	177	14	15	358

		*						*	
ST	8.5	*						*	

									Total
OP	1.1	3	2	0	0	5	1	0	11
OP	1.2	3	3	0	0	5	1	0	12
OP	1.3	3	2	0	0	5	1	0	11
OP	1.4	3	3	0	0	6	1	0	13
OP	1.5	4	3	0	0	6	1	0	14
OP	2.1	6	2	2	0	7	0	0	17
OP	2.2	6	3	2	0	7	0	0	18
OP	2.3	5	3	1	0	7	0	0	16
OP	2.4	5	3	1	0	7	0	0	16
OP	2.5	5	3	1	0	7	0	0	16
OP	2.6	4	2	1	0	7	0	0	14
OP	3.1	4	3	0	0	7	1	0	15
OP	3.2	5	3	0	0	6	1	0	15
OP	4.1	4	1	0	0	6	0	0	11
OP	4.2	4	1	0	0	6	0	0	11
OP	4.3	4	1	0	0	6	0	0	11
OP	4.4	4	1	0	0	6	0	0	11
OP	4.5	4	1	0	0	6	0	0	11
OP	4.6	4	1	0	0	6	0	0	11
OP	4.7	3	1	0	0	6	0	0	10
OP	5.1	4	2	0	0	6	1	0	13
OP	5.2	3	2	0	0	6	1	0	12
OP	5.3	3	2	0	0	6	1	0	12
OP	5.4	4	2	0	0	6	1	0	13
OP	5.5	2	2	0	0	6	1	0	11
OP	5.6	5	2	0	0	5	1	1	14
OP	5.7	4	2	0	0	5	1	0	12
OP	5.8	3	2	0	0	6	1	0	12
OP	6.1	1	3	0	0	4	1	0	9
OP	6.2	8	2	0	0	6	1	0	17
OP	6.3	7	2	0	0	6	1	1	17
OP	6.4	4	2	0	0	6	1	0	13
OP	6.5	7	2	0	0	6	1	0	16
		138	69	8	0	198	20	2	435

OP	1.1	*	*			*	*	
OP	1.2	*	*			*	*	
OP	1.3	*	*			*	*	
OP	1.4	*	*			*	*	
OP	1.5	*	*			*	*	
OP	2.1	*	*	*		*		
OP	2.2	*	*	*		*		
OP	2.3	*	*	*		*		
OP	2.4	*	*	*		*		
OP	2.5	*	*	*		*		
OP	2.6	*	*	*		*		
OP	3.1	*	*			*	*	
OP	3.2	*	*			*	*	
OP	4.1	*	*			*		
OP	4.2	*	*			*		
OP	4.3	*	*			*		
OP	4.4	*	*			*		
OP	4.5	*	*			*		
OP	4.6	*	*			*		
OP	4.7	*	*			*		
OP	5.1	*	*			*	*	
OP	5.2	*	*			*	*	
OP	5.3	*	*			*	*	
OP	5.4	*	*			*	*	
OP	5.5	*	*			*	*	
OP	5.6	*	*			*	*	*
OP	5.7	*	*			*	*	
OP	5.8	*	*			*	*	
OP	6.1	*	*			*	*	
OP	6.2	*	*			*	*	
OP	6.3	*	*			*	*	*
OP	6.4	*	*			*	*	
OP	6.5	*	*			*	*	

									Total
TA	1	3	7	2	1	4	0	2	19
TA	2	4	7	1	0	4	0	2	18
TA	3	3	6	1	0	4	0	3	17
TA	4	3	6	1	0	4	0	2	16
TA	5	3	7	0	1	4	0	2	17
TA	6	7	7	2	1	4	0	3	24
		23	40	7	3	24	0	14	111

TA	1	*	*	*	*	*		*
TA	2	*	*	*		*		*
TA	3	*	*	*		*		*
TA	4	*	*	*		*		*
TA	5	*	*		*	*		*
TA	6	*	*	*	*	*		*

Totals:	341	125	36	3	491	90	31	1117

Notes:
Sixty-eight exercise plans were included.
All plans were used regardless of whether UJTL requirements were specified or not specified.

UJTL Partitioning

UJTL

V

Tasks that are not
considered potential
CAX training objectives

Tasks that are
considered potential
CAX training objectives

IV

Tasks that are not
cited in any JTP

Tasks that are cited in
one or more JTPs

Tasks that are cited in
only one JTP

Tasks that are cited in
two or more JTPs

III

Tasks that are not cited
as CAX objectives

II

Tasks that are not cited
as CAX objectives

I

Tasks that are cited as
CAX objectives

I

Tasks that are cited as
CAX objectives

UJTL Circles

Other UJTLS

Supports M&S Based Exercises

V

IV

III

Required for
one objective

Required for several
objectives

II

I

Required for all
listed CAXs

Exercise Plans:

TRANSCOM
EUCOM
USCINCPAC
SOUTHCOM

Circle I

TA 1 - 1	ST 2.3.4 - 2	ST 5.1.3 - 2	ST 8.2.2 - 2
TA 2 - 1	ST 2.3.5 - 2	ST 5.1.4 - 2	ST 8.2.3 - 2
TA 3 - 1	ST 2.3.6 - 3	ST 5.1.5 - 2	ST 8.2.4 - 3
TA 4 - 1	ST 2.4 - 7	ST 5.2.5 - 1	ST 8.2.8 - 3
TA 5 - 1	ST 3.1 - 2	ST 5.3 - 3	ST 8.2.9 - 4
TA 6 - 1	ST 3.1.1 - 2	ST 5.4.1 - 3	ST 8.3 - 7
ST 1.1 - 4	ST 3.1.2 - 2	ST 5.4.2 - 4	ST 8.3.2 - 3
ST 1.1.1 - 2	ST 3.2 - 2	ST 5.4.3 - 3	ST 8.3.4 - 2
ST 1.1.2 - 6	ST 3.2.1 - 2	ST 5.4.4 - 3	ST 8.4.1 - 2
ST 1.1.3 - 2	ST 3.2.2 - 2	ST 5.5 - 2	ST 8.4.2 - 3
ST 1.1.4 - 2	ST 3.2.3 - 2	ST 6.1 - 2	ST 8.4.3 - 6
ST 1.3.1 - 1	ST 4.2.1 - 1	ST 6.1.2 - 2	SN 2.2 - 1
ST 1.3.3 - 1	ST 4.2.2 - 2	ST 6.1.3 - 2	SN 2.3 - 4
ST 1.6.2 - 2	ST 4.2.3 - 1	ST 6.1.4 - 2	SN 3.2 - 1
ST 1.6.3 - 2	ST 4.2.5 - 3	ST 6.1.5 - 2	SN 3.4 - 2
ST 2.1 - 5	ST 4.3.1 - 3	ST 6.2 - 5	SN 3.4.4 - 1
ST 2.1.3 - 2	ST 4.3.2 - 3	ST 6.2.4 - 1	SN 3.4.5 - 1
ST 2.2 - 7	ST 4.4.1 - 2	ST 6.2.5 - 5	SN 3.4.6 - 1
ST 2.2.1 - 2	ST 4.4.2 - 2	ST 8.1.1 - 1	SN 5.1.2 - 2
ST 2.3.1 - 3	ST 5 - 5	ST 8.1.2 - 3	OP 5.6 - 1
ST 2.3.2 - 3	ST 5.1.1 - 6	ST 8.2.1 - 3	OP 6.3 - 1

Circle II

ST 1 - 2	ST 2.3 - 5	ST 5.4 - 5	ST 7.1.4 - 22
ST 1.1.5 - 3	ST 3 - 2	ST 6 - 2	ST 8 - 2
ST 1.3.5 - 2	ST 4 - 2	ST 6.1.1 - 2	ST 8.2 - 7
ST 1.6 - 6	ST 4.3 - 2	ST 6.3.1 - 2	ST 8.3.1 - 3
ST 1.6.1 - 2	ST 5.1 - 2	ST 6.4.1 - 2	ST 8.3.3 - 3
ST 2 - 5	ST 5.2.2 - 2	ST 6.4.3 - 2	ST 8.4 - 6
ST 2.1.1 - 2	ST 5.3.1 - 2	ST 7 - 2	
ST 2.1.2 - 4	ST 5.3.2 - 2	ST 7.1.1 - 5	
ST 2.2.2 - 2	ST 5.3.3 - 2	ST 7.1.3 - 5	

Circle III

ST 1.2 - 1	ST 6.3 - 1	SN 1.1.4 - 1	SN 5.1.1 - 2
ST 1.3 - 1	ST 6.3.2 - 1	SN 1.1.5 - 5	SN 5.1.3 - 2
ST 1.3.2 - 1	ST 6.4 - 1	SN 1.2 - 1	SN 5.1.4 - 1
ST 1.4 - 1	ST 6.4.2 - 1	SN 1.2.1 - 1	SN 5.1.5 - 1
ST 1.5 - 1	ST 7.1 - 1	SN 1.2.2 - 3	SN 5.4 - 1
ST 1.5.1 - 1	ST 7.1.2 - 3	SN 1.2.3 - 1	SN 5.4.2 - 3
ST 1.5.2 - 1	ST 7.1.5 - 1	SN 1.2.4 - 2	SN 6 - 1
ST 2.2.3 - 1	ST 7.1.6 - 1	SN 1.2.5 - 1	SN 6.1.4 - 1
ST 2.3.3 - 1	ST 7.1.7 - 1	SN 1.2.6 - 1	SN 6.1.5 - 1
ST 3.1.3 - 1	ST 7.2 - 1	SN 1.2.7 - 1	SN 6.2 - 1
ST 4.2 - 1	ST 7.2.1 - 1	SN 2 - 4	SN 6.2.1 - 1
ST 4.2.4 - 1	ST 7.2.2 - 1	SN 2.1.2 - 4	SN 6.2.2 - 1
ST 4.4 - 1	ST 7.2.3 - 1	SN 2.4 - 6	SN 6.2.3 - 1
ST 5.1.2 - 1	ST 8.1 - 1	SN 3.3 - 1	SN 6.3.1 - 1
ST 5.2 - 1	ST 8.1.3 - 1	SN 3.4.1 - 1	SN 6.3.2 - 1
ST 5.2.1 - 1	ST 8.2.6 - 1	SN 3.4.2 - 1	SN 6.4 - 1
ST 5.2.3 - 1	ST 8.4.4 - 1	SN 3.4.3 - 2	SN 6.4.1 - 2
ST 5.2.4 - 1	SN 1 - 1	SN 3.5 - 1	SN 6.4.2 - 3
ST 5.2.5 - 1	SN 1.1 - 1	SN 3.5.5 - 1	SN 6.6.5 - 1
ST 6.2.3 - 1	SN 1.1.1 - 1	SN 3.5.8 - 4	OP 2 - 1

Circle IV

TA 1.1.1	TA 5.4.6	SN 4.2.11	OP 1.2.4	OP 5.1.4
TA 1.1.2	TA 5.5	SN 4.2.12	OP 1.3.1	OP 5.1.5
TA 1.1.3	TA 6.1.1	SN 4.2.2	OP 1.3.2	OP 5.1.6
TA 1.2	TA 6.1.2	SN 4.2.3	OP 1.4.1	OP 5.2.1
TA 1.3	TA 6.2.1	SN 4.2.4	OP 1.4.2	OP 5.2.2
TA 1.4.1	TA 6.2.2	SN 4.2.5	OP 1.4.3	OP 5.2.3
TA 1.4.2	TA 6.2.3	SN 4.2.6	OP 1.5.1	OP 5.3.1
TA 1.5	TA 6.2.4	SN 4.2.7	OP 1.5.2	OP 5.3.2
TA 2.1	TA 6.3.1	SN 4.2.8	OP 1.5.3	OP 5.3.3
TA 2.2.1	TA 6.3.2	SN 4.2.9	OP 1.5.4	OP 5.3.4
TA 2.2.2	TA 6.3.3	SN 4.3	OP 1.5.5	OP 5.3.5
TA 2.2.3	TA 6.3.4	SN 4.4	OP 2.1.1	OP 5.3.6
TA 2.3.1	TA 6.3.5	SN 5.2.1	OP 2.1.2	OP 5.3.7
TA 2.3.3	ST 1.3.4	SN 5.2.2	OP 2.1.3	OP 5.3.8
TA 2.3.3	ST 4.1	SN 5.2.3	OP 2.1.4	OP 5.3.9
TA 2.3.4	ST 4.4.3	SN 5.2.4	OP 2.1.5	OP 5.4.1
TA 2.4.1	ST 6.2.1	SN 5.3.1	OP 2.2.1	OP 5.4.2
TA 2.4.2	ST 6.2.2	SN 5.3.2	OP 2.2.2	OP 5.4.3
TA 3.1.1	ST 8.2.5	SN 5.3.3	OP 2.2.3	OP 5.4.4
TA 3.1.2	ST 8.2.7	SN 5.3.4	OP 2.3.1	OP 5.4.5
TA 3.1.3	SN 2.1.1	SN 5.3.5	OP 2.3.2	OP 5.5.1
TA 3.1.4	SN 2.1.3	SN 5.4.1	OP 2.3.3	OP 5.5.2
TA 3.2.1	SN 2.1.4	SN 5.4.3	OP 2.3.4	OP 5.5.3
TA 3.2.2	SN 2.2.1	SN 5.4.4	OP 2.4	OP 5.5.4
TA 4.1	SN 2.2.2	SN 5.5	OP 2.5	OP 5.5.5
TA 4.2	SN 2.2.3	SN 6.1.1	OP 3.1.1	OP 5.6.1
TA 4.3	SN 2.2.4	SN 6.1.2	OP 3.1.2	OP 5.6.2
TA 4.4.1	SN 2.3.1	SN 6.1.3	OP 3.1.3	OP 5.7.1
TA 4.4.2	SN 2.3.2	SN 6.2.4	OP 3.1.4	OP 5.7.2
TA 4.4.3	SN 2.3.3	SN 6.3.3	OP 3.1.5	OP 5.7.3
TA 4.4.4	SN 2.3.4	SN 6.3.4	OP 3.1.6	OP 5.7.4
TA 4.4.5	SN 2.3.5	SN 6.4.3	OP 3.1.7	OP 6.1.1
TA 4.5.1	SN 3.1.1	SN 6.5.1	OP 3.2.1	OP 6.1.2
TA 4.5.2	SN 3.2.1	SN 6.5.2	OP 3.2.2	OP 6.1.3
TA 4.6.1	SN 3.2.2	SN 6.5.3	OP 3.2.3	OP 6.1.4
TA 4.6.2	SN 3.2.3	SN 6.5.4	OP 3.2.4	OP 6.1.5
TA 4.6.3	SN 3.2.4	SN 6.5.5	OP 3.2.5	OP 6.2.1
TA 4.6.4	SN 3.2.5	SN 6.6.1	OP 3.2.6	OP 6.2.2
TA 4.6.5	SN 3.2.6	SN 6.6.2	OP 3.2.7	OP 6.2.3
TA 4.7.1	SN 3.3.1	SN 6.6.3	OP 4.1	OP 6.2.4
TA 4.7.2	SN 3.3.2	SN 6.6.4	OP 4.2	OP 6.2.5
TA 4.8	SN 3.3.3	SN 6.6.6	OP 4.3	OP 6.2.6
TA 5.1.1	SN 3.3.4	SN 6.6.7	OP 4.4.4	OP 6.2.7
TA 5.1.2	SN 3.3.5	SN 6.7	OP 4.5.1	OP 6.2.8
TA 5.1.3	SN 3.3.6	SN 7.1.1	OP 4.5.2	OP 6.3.1
TA 5.2.1	SN 3.3.7	SN 7.1.3	OP 4.6.1	OP 6.3.2
TA 5.2.2	SN 3.3.8	SN 7.1.4	OP 4.6.2	OP 6.3.3
TA 5.2.3	SN 3.5.1	SN 7.3.1	OP 4.6.3	OP 6.3.4
TA 5.3.1	SN 3.5.2	SN 7.5.1	OP 4.6.4	OP 6.4.1
TA 5.3.2	SN 3.5.3	SN 7.5.2	OP 4.7.1	OP 6.4.2

TA	5.3.3	SN	3.5.4	SN	7.5.3	OP	4.7.2	OP	6.4.3
TA	5.3.4	SN	3.5.6	SN	7.7.4	OP	4.7.3	OP	6.5.1
TA	5.4.1	SN	3.5.7	SN	7.8	OP	4.7.4	OP	6.5.2
TA	5.4.2	SN	4.1.1	OP	1.1.1	OP	4.7.5	OP	6.5.3
TA	5.4.3	SN	4.1.2	OP	1.1.2	OP	5.1.1	OP	6.5.4
TA	5.4.4	SN	4.2.1	OP	1.2.2	OP	5.1.2	OP	6.5.5
TA	5.4.5	SN	4.2.10	OP	1.2.3	OP	5.1.3		

Circle V

SN	3.1.2	SN	7.2	SN	7.4.1	SN	7.6	OP	4.4.5
SN	3.1.3	SN	7.3.2	SN	7.4.2	SN	7.7.1		
SN	3.1.4	SN	7.3.3	SN	7.4.3	SN	7.7.2		
SN	7.1.2	SN	7.3.4	SN	7.5.4	SN	7.7.3		

Use Case Derived Graphs and Tables

The following tables and graphs are derived from analysis of the 29 columns in the workshop use cases. Although most tables and graphs are self-explanatory, individual explanations are provided when needed.

Use Case Scenarios

Table 1

	JNT	SER	PLN	REH	PME	SRE	DOC	Overall
2 MRC	18.4%	5.0%	0.0%	0.0%	16.7%	62.5%	28.6%	17.9%
1 MRC	26.3%	30.0%	25.0%	0.0%	41.7%	0.0%	28.6%	26.3%
LRC	26.3%	30.0%	75.0%	0.0%	25.0%	12.5%	28.6%	29.5%
MOOTW	28.9%	35.0%	0.0%	100.0%	16.7%	25.0%	14.3%	26.3%

Note: Percentages represent number of requirements for the indicated
scenario vs. total number of requirements within each column.

Table 2

	JNT	SER	PLN	REH	PME	SRE	DOC	Total
2 MRC	7	1	0	0	2	5	2	17
1 MRC	10	6	2	0	5	0	2	25
LRC	10	6	6	0	3	1	2	28
MOOTW	11	7	0	2	2	2	1	25
Total	38	20	8	2	12	8	7	95

Note: Figures indicate number of scenario requirements.

Graph 1
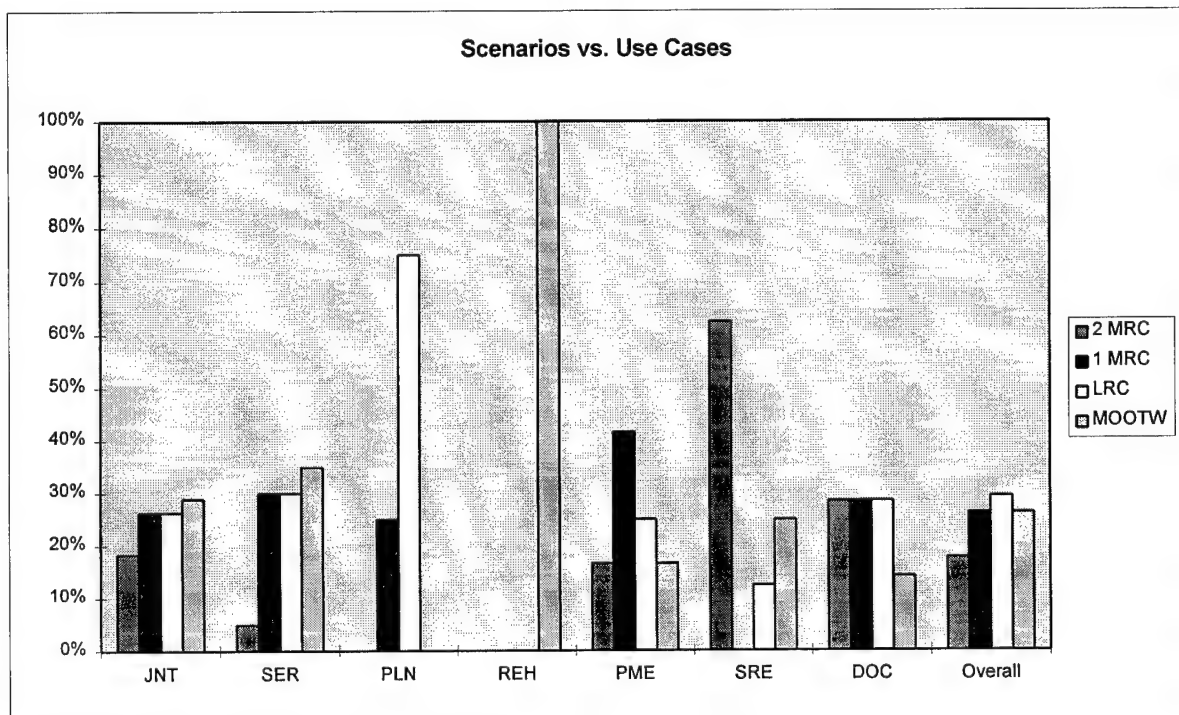
Scenarios vs. Use Cases

JNT - CINC/JTF/Component/Agency Training
SER - Service/Agency Training
PLN - Planning and Analysis
REH - Crew/Team Rehearsal
PME - Professional Military Education
SRE - Senior Officer Education
DOC - Doctrinal Development

Phases of Operation

Table 3

	JNT	SER	PLN	REH	PME	SRE	DOC	Overall
Mobilize	15.3%	7.1%	11.1%	0.0%	11.9%	16.7%	12.0%	13.0%
Deploy	20.7%	21.4%	22.2%	25.0%	23.8%	22.2%	12.0%	20.7%
Employ	27.0%	50.0%	38.9%	75.0%	31.0%	22.2%	32.0%	32.1%
Sustain	22.5%	21.4%	22.2%	0.0%	21.4%	22.2%	32.0%	22.8%
Redeploy	14.4%	0.0%	5.6%	0.0%	11.9%	16.7%	12.0%	11.4%

Note: Percentages represent number of requirements for the indicated
phase vs. total number of phase requirements within each column.

Table 4

	JNT	SER	PLN	REH	PME	SRE	DOC	Total
Mobilize	17	2	2	0	5	3	3	32
Deploy	23	6	4	1	10	4	3	51
Employ	30	14	7	3	13	4	8	79
Sustain	25	6	4	0	9	4	8	56
Redeploy	16	0	1	0	5	3	3	28
Total	111	28	18	4	42	18	25	246

Note: Figures indicate number of phase requirements.

Graph 2
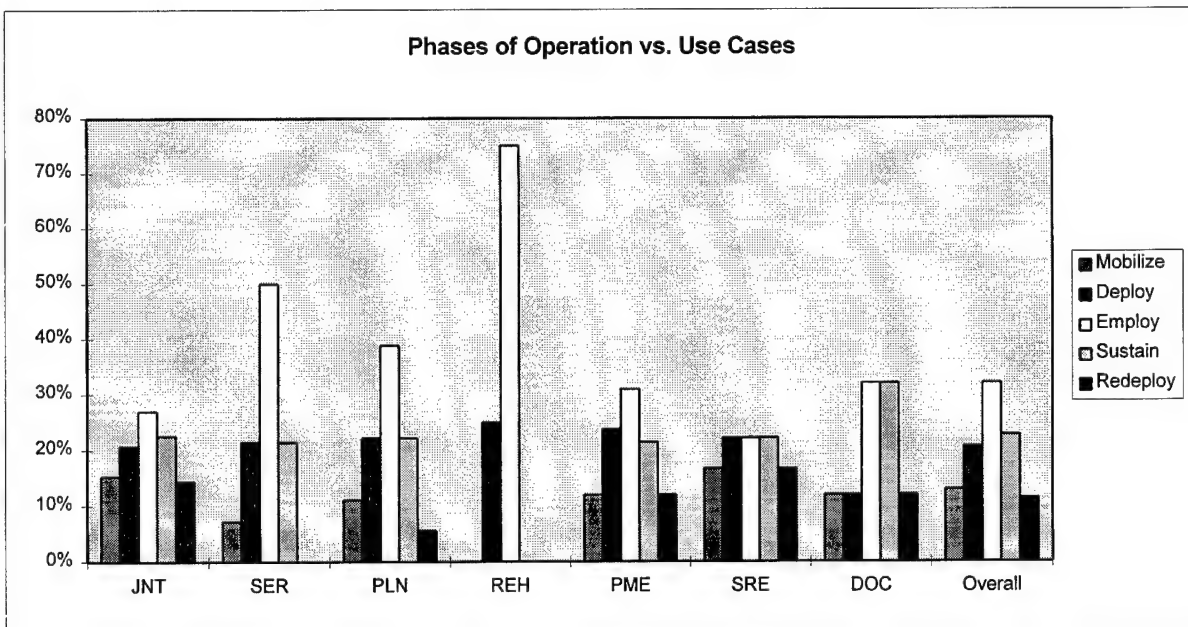
Phases of Operation vs. Use Cases

JNT - CINC/JTF/Component/Agency Training
SER - Service/Agency Training
PLN - Planning and Analysis
REH - Crew/Team Rehearsal
PME - Professional Military Education
SRE - Senior Officer Education
DOC - Doctrinal Development

Use Case Theaters

Table 5

	JNT	SER	PLN	REH	PME	SRE	DOC	
Massive Theaters								
Global	3		1			1	1	6
Large Operating Areas (> 3000K km²)								
Undefined	4		3		1		2	10
Multiple-non-specified	3							
Europe - nonspecific	4							4
Africa - nonspecific	4							4
Within CENTCOM Region	7	4			4			15
Within SOUTHCOM Region	7	4			7			18
Within EUCOM Region	5	2			4			11
Within PACOM Region	8	5			6			19
North Africa and SWA						1		1
Balkans & Iraq/Kuwait/Saudi Arabia	2	1						3
GER/PO/CZ Rep & Iraq/Kuwait/Saudi Arabia					1			1
GER/PO/CZ Rep & Iraq and Syria					1			1
Russia & Ukraine						1		1
Namibia		1			1			2
Somalia		1						1
Mediterranean	1	2						3
Balkans & Iraq/Kuwait/Saudi Arabia	2	1						3
	50	21	4	0	25	3	3	106
Medium Operating Areas (100K km² to 3000K km²)								
Undefined			2					2
Within ACOM Region		2			1			3
Within CENTCOM Region	2				1			3
Within SOUTHCOM Region	2				1			3
Within EUCOM Region	2		1		1			4
Within PACOM Region	2							2
Bosnia		3						3
Southwest Asia - MRC	6	1	2	1	1	2	5	18
GE/N.IT/N.GR/Balkans	1							1
GE/CZ		1						1
Balkans	1	1			2			4
South Asia						1		1
Korea - MRC	4	2			3	2		11
Persian Gulf					1			1
	20	10	5	1	11	5	5	57
Small Operating Areas - (<100K km²)								
Not specified	2				1			3
100X100nm		1						1
Within ACOM	1							1
Within CENTCOM Region	1	1			1			3
Within SOUTHCOM Region	1	1			1			3
Within EUCOM Region	1	1			1			3
Within PACOM Region	1	1			1			3
Haiti	1	1			1			3
Cuba	3		1					4
Peru/Ecuador	1							
Conus Training	1	1			1			3
Caribbean	1	1		1				3
	14	8	1	1	7	0	0	31

Notes:
Operating area size is based on CJCSM 3500.04, UJTL 2.1, definitions.
Categorization is based on calculated operating area sizes or estimates based on the context of the individual use case.

Number of Sides

Table 6

	JNT	SER	PLN	REH	PME	SRE	DOC	Overall
1-10	48.1%	40.0%	40.0%	0.0%	70.0%	75.0%	100.0%	52.2%
11-20	18.5%	20.0%	60.0%	0.0%	20.0%	0.0%	0.0%	19.4%
21-30	18.5%	26.7%	0.0%	100.0%	0.0%	25.0%	0.0%	17.9%
31-40	11.1%	6.7%	0.0%	0.0%	10.0%	0.0%	0.0%	7.5%
> 40	3.7%	6.7%	0.0%	0.0%	0.0%	0.0%	0.0%	3.0%

Note: Percentages represent number of requirements for the indicated range of sides vs. total number of side requirements within each column.

Table 7

	JNT	SER	PLN	REH	PME	SRE	DOC	Total
1-10	13	6	2	0	7	3	4	35
11-20	5	3	3	0	2	0	0	13
21-30	5	4	0	2	0	1	0	12
31-40	3	1	0	0	1	0	0	5
> 40	1	1	0	0	0	0	0	2
Total	27	15	5	2	10	4	4	67

Note: Figures indicate number of requirements for the indicated number of sides.

Graph 3
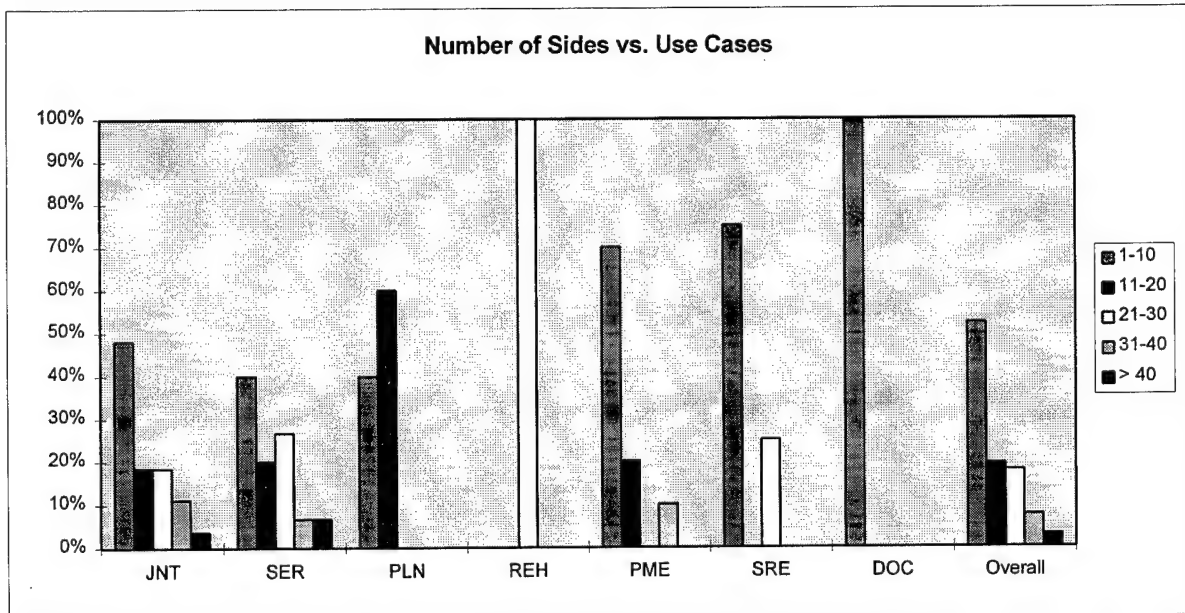
Number of Sides vs. Use Cases

JNT - CINC/JTF/Component/Agency Training
SER - Service/Agency Training
PLN - Planning and Analysis
REH - Crew/Team Rehearsal
PME - Professional Military Education
SRE - Senior Officer Education
DOC - Doctrinal Development

Event Duration (Days)

Table 8

	JNT	SER	PLN	REH	PME	SRE	DOC	Overall
0-5 Days	24.4%	66.7%	62.5%	50.0%	81.8%	50.0%	0.0%	42.9%
6-10 Days	51.2%	33.3%	25.0%	50.0%	9.1%	50.0%	85.7%	42.9%
11-15 Days	22.0%	0.0%	0.0%	0.0%	9.1%	0.0%	0.0%	11.0%
16+ Days	2.4%	0.0%	12.5%	0.0%	0.0%	0.0%	14.3%	3.3%

Note: Percentages represent number of requirements for the indicated
range of days vs. total number of requirements within each column.

Table 9

	JNT	SER	PLN	REH	PME	SRE	DOC	Total
0-5 Days	10	12	5	1	9	2	0	39
6-10 Days	21	6	2	1	1	2	6	39
11-15 Days	9	0	0	0	1	0	0	10
16+ Days	1	0	1	0	0	0	1	3
Total	41	18	8	2	11	4	7	91

Note: Figures indicate number of requirements fore each range of days.

Graph 4
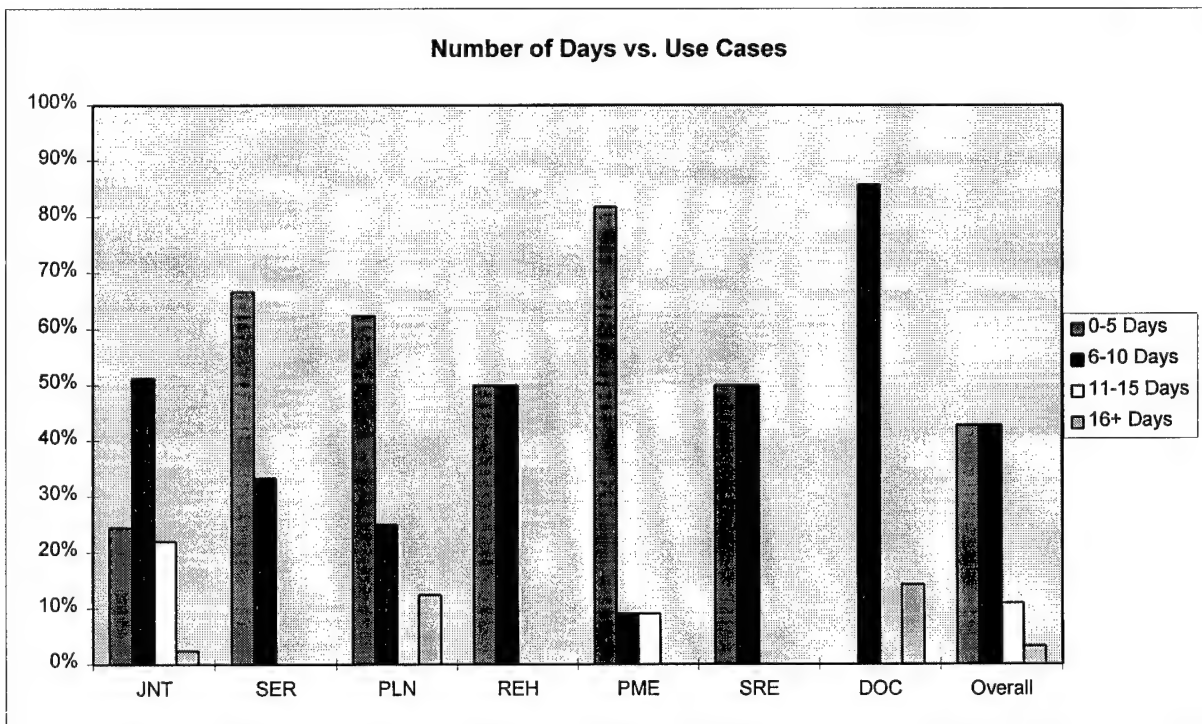
Number of Days vs. Use Cases

JNT - CINC/JTF/Component/Agency Training
SER - Service/Agency Training
PLN - Planning and Analysis
REH - Crew/Team Rehearsal
PME - Professional Military Education
SRE - Senior Officer Education
DOC - Doctrinal Development

Event Duration (Hours/Day)

Table 10

	JNT	SER	PLN	REH	PME	SRE	DOC	Overall
1-6 hours	0.0%	0.0%	12.5%	0.0%	45.5%	75.0%	0.0%	9.9%
7-12 hours	9.8%	50.0%	37.5%	0.0%	54.5%	25.0%	85.7%	31.9%
13-18 hours	4.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	2.2%
19-24 hours	85.4%	50.0%	50.0%	100.0%	0.0%	0.0%	14.3%	56.0%

Note: Percentages represent number of requirements for the indicated
range of hours vs. total number of requirements within each column.

Table 11

	JNT	SER	PLN	REH	PME	SRE	DOC	Total
1-6 hours	0	0	1	0	5	3	0	9
7-12 hours	4	9	3	0	6	1	6	29
13-18 hours	2	0	0	0	0	0	0	2
19-24 hours	35	9	4	2	0	0	1	51
Total	41	18	8	2	11	4	7	91

Note: Figures indicate number of requirements for each range of hours.

Graph 5
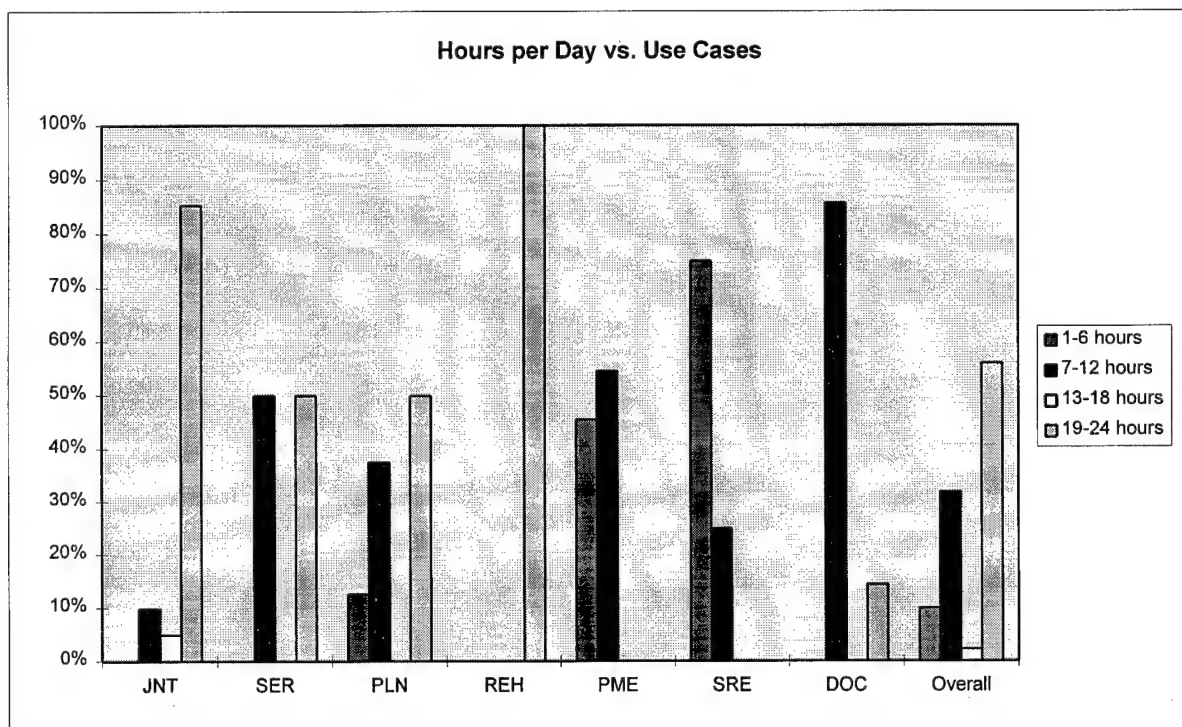
Hours per Day vs. Use Cases

JNT - CINC/JTF/Component/Agency Training
SER - Service/Agency Training
PLN - Planning and Analysis
REH - Crew/Team Rehearsal
PME - Professional Military Education
SRE - Senior Officer Education
DOC - Doctrinal Development

Training/User Audience

Table 12

	JNT	SER	PLN	REH	PME	SRE	DOC	Overall
CINC	24.4%	0.0%	26.7%	0.0%	11.1%	83.3%	12.5%	17.5%
JTF	21.8%	9.5%	33.3%	0.0%	25.9%	16.7%	12.5%	19.0%
JTF Comp	29.5%	19.0%	6.7%	0.0%	29.6%	0.0%	6.3%	21.7%
DIV/WG/BG	9.0%	16.7%	0.0%	0.0%	7.4%	0.0%	12.5%	9.5%
Bde/Regt	0.0%	7.1%	0.0%	0.0%	0.0%	0.0%	0.0%	1.6%
Bn/SQ/Ship	3.8%	16.7%	6.7%	20.0%	11.1%	0.0%	0.0%	7.9%
Co/Flt	2.6%	9.5%	0.0%	20.0%	3.7%	0.0%	0.0%	4.2%
Aircraft	1.3%	9.5%	0.0%	40.0%	0.0%	0.0%	0.0%	3.7%
SOF Team	7.7%	7.1%	20.0%	20.0%	3.7%	0.0%	43.8%	11.1%
Individuals	0.0%	4.8%	6.7%	0.0%	7.4%	0.0%	12.5%	3.7%

Note: Percentages represent number of requirements for the indicated user level vs. total number of requirements within each column.

Table 13

	JNT	SER	PLN	REH	PME	SRE	DOC	Total
CINC	19	0	4	0	3	5	2	33
JTF	17	4	5	0	7	1	2	36
JTF Comp	23	8	1	0	8	0	1	41
DIV/WG/BG	7	7	0	0	2	0	2	18
Bde/Regt	0	3	0	0	0	0	0	3
Bn/SQ/Ship	3	7	1	1	3	0	0	15
Co/Flt	2	4	0	1	1	0	0	8
Aircraft	1	4	0	2	0	0	0	7
SOF Team	6	3	3	1	1	0	7	21
Individuals	0	2	1	0	2	0	2	7
Total	78	42	15	5	27	6	16	189

Note: Figures indicate number of requirements at each user level.

Training/User Audience

Graph 6
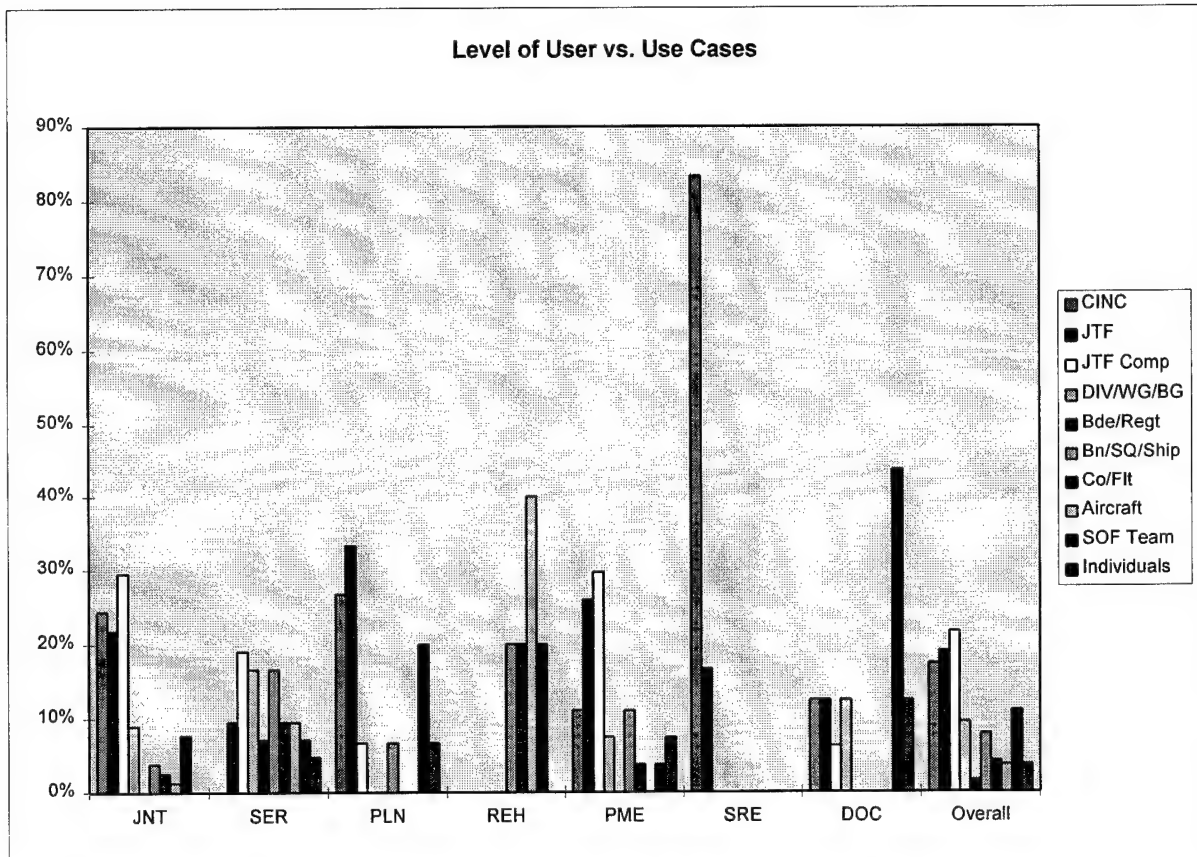
Level of User vs. Use Cases

JNT - CINC/JTF/Component/Agency Training
SER - Service/Agency Training
PLN - Planning and Analysis
REH - Crew/Team Rehearsal
PME - Professional Military Education
SRE - Senior Officer Education
DOC - Doctrinal Development

Audience Size

Table 14

	JNT	SER	PLN	REH	PME	SRE	DOC	Overall
0-100	15.4%	70.0%	100.0%	100.0%	57.1%	16.7%	100.0%	45.5%
101-500	19.2%	30.0%	0.0%	0.0%	42.9%	66.7%	0.0%	27.3%
501-1000	34.6%	0.0%	0.0%	0.0%	0.0%	16.7%	0.0%	15.2%
1001-250	26.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	10.6%
2500+	3.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.5%

Note: Percentages represent number of requirements for the indicated range of audience size vs. total number of requirements within each column.

Table 15

	JNT	SER	PLN	REH	PME	SRE	DOC	Total
0-100	4	14	1	1	4	1	5	30
101-500	5	6	0	0	3	4	0	18
501-1000	9	0	0	0	0	1	0	10
1001-250	7	0	0	0	0	0	0	7
2500+	1	0	0	0	0	0	0	1
Total	26	20	1	1	7	6	5	66

Note: Figures indicate number of requirements for each range of audience size.

Graph 7
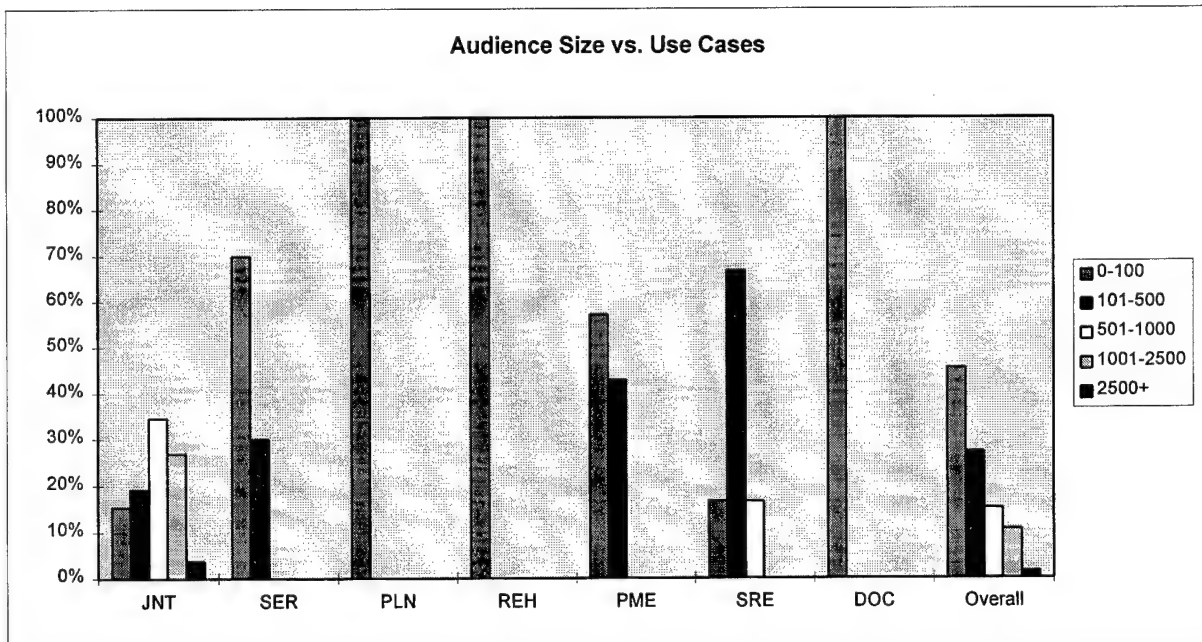
Audience Size vs. Use Cases

JNT - CINC/JTF/Component/Agency Training
SER - Service/Agency Training
PLN - Planning and Analysis
REH - Crew/Team Rehearsal
PME - Professional Military Education
SRE - Senior Officer Education
DOC - Doctrinal Development

Level Commanded

Table 16

|	JNT	SER	PLN	REH	PME	SRE	DOC	Overall
CINC	3.3%	0.0%	33.3%	0.0%	0.0%	50.0%	9.1%	6.1%
JTF	3.3%	0.0%	33.3%	0.0%	0.0%	25.0%	9.1%	4.9%
JTF Comp	20.0%	0.0%	0.0%	0.0%	35.7%	0.0%	0.0%	13.4%
DIV/WG/BG	36.7%	41.2%	0.0%	0.0%	14.3%	25.0%	0.0%	25.6%
Bde/Regt	0.0%	5.9%	0.0%	0.0%	0.0%	0.0%	0.0%	1.2%
Bn/SQ/Ship	13.3%	11.8%	0.0%	0.0%	21.4%	0.0%	18.2%	13.4%
Co/Flt	3.3%	17.6%	0.0%	0.0%	14.3%	0.0%	0.0%	7.3%
Aircraft	3.3%	5.9%	0.0%	33.3%	0.0%	0.0%	27.3%	7.3%
SOF Team	10.0%	17.6%	0.0%	33.3%	14.3%	0.0%	9.1%	12.2%
Platform	6.7%	0.0%	33.3%	0.0%	0.0%	0.0%	27.3%	7.3%
Individuals	0.0%	0.0%	0.0%	33.3%	0.0%	0.0%	0.0%	1.2%

Note: Percentages represent number of requirements for the indicated level of unit commanded vs. total number of requirements within each column.

Table 17

	JNT	SER	PLN	REH	PME	SRE	DOC	Total
CINC	1	0	1	0	0	2	1	5
JTF	1	0	1	0	0	1	1	4
JTF Comp	6	0	0	0	5	0	0	11
DIV/WG/BG	11	7	0	0	2	1	0	21
Bde/Regt	0	1	0	0	0	0	0	1
Bn/SQ/Ship	4	2	0	0	3	0	2	11
Co/Flt	1	3	0	0	2	0	0	6
Aircraft	1	1	0	1	0	0	3	6
SOF Team	3	3	0	1	2	0	1	10
Platform	2	0	1	0	0	0	3	6
Individuals	0	0	0	1	0	0	0	1
Total	30	17	3	3	14	4	11	82

Note: Figures indicate number of requirements for the level of unit commanded.

Note: Platforms include, for example, C4I/ISR assets which include satellites, JSTARS, AWACS.

Level Commanded

Graph 8

Level Commanded vs. Use Cases

Legend:
- CINC
- JTF
- JTF Comp
- DIV/WG/BG
- Bde/Regt
- Bn/SQ/Ship
- Co/Flt
- Aircraft
- SOF Team
- Platform
- Individuals

X-axis categories: JNT, SER, PLN, REH, PME, SRE, DOC, Overall

JNT - CINC/JTF/Component/Agency Training
SER - Service/Agency Training
PLN - Planning and Analysis
REH - Crew/Team Rehearsal
PME - Professional Military Education
SRE - Senior Officer Education
DOC - Doctrinal Development

Number Commanded

Table 18

	JNT	SER	PLN	REH	PME	SRE	DOC	Overall
1-20	54.3%	54.5%	100.0%	100.0%	37.5%	66.7%	54.5%	55.6%
21-40	8.6%	9.1%	0.0%	0.0%	50.0%	0.0%	0.0%	11.1%
41-100	20.0%	18.2%	0.0%	0.0%	12.5%	0.0%	45.5%	20.8%
101-200	5.7%	9.1%	0.0%	0.0%	0.0%	33.3%	0.0%	5.6%
201-500	8.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	4.2%
501-1000	2.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.4%
1000+	0.0%	9.1%	0.0%	0.0%	0.0%	0.0%	0.0%	1.4%

Note: Percentages represent number of requirements for the indicated range of units commanded vs. total number of requirements within each column.

Table 19

	JNT	SER	PLN	REH	PME	SRE	DOC	Total
1-20	19	6	2	2	3	2	6	40
21-40	3	1	0	0	4	0	0	8
41-100	7	2	0	0	1	0	5	15
101-200	2	1	0	0	0	1	0	4
201-500	3	0	0	0	0	0	0	3
501-1000	1	0	0	0	0	0	0	1
1000+	0	1	0	0	0	0	0	1
Total	35	11	2	2	8	3	11	72

Note: Figures indicate number of requirements for each range of number of units commanded.

Graph 9
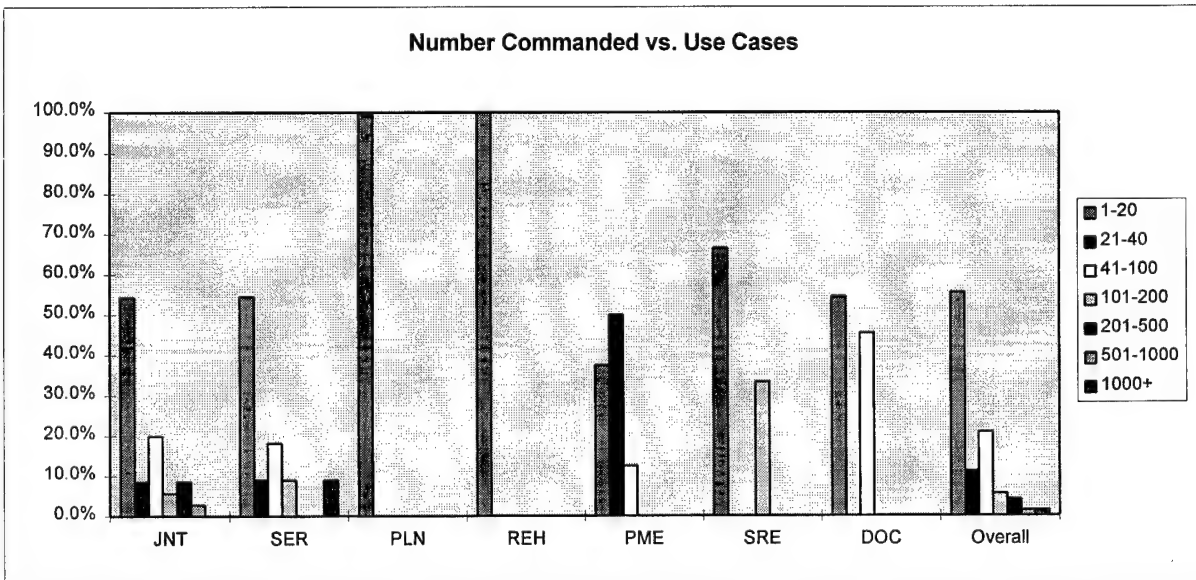
Number Commanded vs. Use Cases

JNT - CINC/JTF/Component/Agency Training
SER - Service/Agency Training
PLN - Planning and Analysis
REH - Crew/Team Rehearsal

PME - Professional Military Education
SRE - Senior Officer Education
DOC - Doctrinal Development

Level Tracked

Table 20

|	JNT	SER	PLN	REH	PME	SRE	DOC	Overall
DIV/WG/BG	4.3%	0.0%	0.0%	0.0%	6.7%	25.0%	0.0%	4.5%
Bde	4.3%	0.0%	0.0%	0.0%	26.7%	25.0%	0.0%	7.3%
Bn/SQ/Ship	31.9%	35.3%	11.1%	0.0%	20.0%	25.0%	20.0%	26.4%
Co/Flt	12.8%	5.9%	11.1%	0.0%	13.3%	12.5%	0.0%	10.0%
Aircraft	27.7%	5.9%	22.2%	25.0%	6.7%	0.0%	30.0%	19.1%
SOF Team	6.4%	11.8%	0.0%	50.0%	6.7%	12.5%	0.0%	8.2%
Platform	8.5%	23.5%	55.6%	0.0%	6.7%	0.0%	50.0%	17.3%
Individuals	4.3%	17.6%	0.0%	25.0%	13.3%	0.0%	0.0%	7.3%

Note: Percentages represent number of requirements for the indicated level of unit tracked vs. total number of requirements within each column.

Table 21

	JNT	SER	PLN	REH	PME	SRE	DOC	Total
DIV/WG/BG	2	0	0	0	1	2	0	5
Bde	2	0	0	0	4	2	0	8
Bn/SQ/Ship	15	6	1	0	3	2	2	29
Co/Flt	6	1	1	0	2	1	0	11
Aircraft	13	1	2	1	1	0	3	21
SOF Team	3	2	0	2	1	1	0	9
Platform	4	4	5	0	1	0	5	19
Individuals	2	3	0	1	2	0	0	8
Total	47	17	9	4	15	8	10	110

Note: Figures indicate number of requirements for each level of unit tracked.

Graph 10
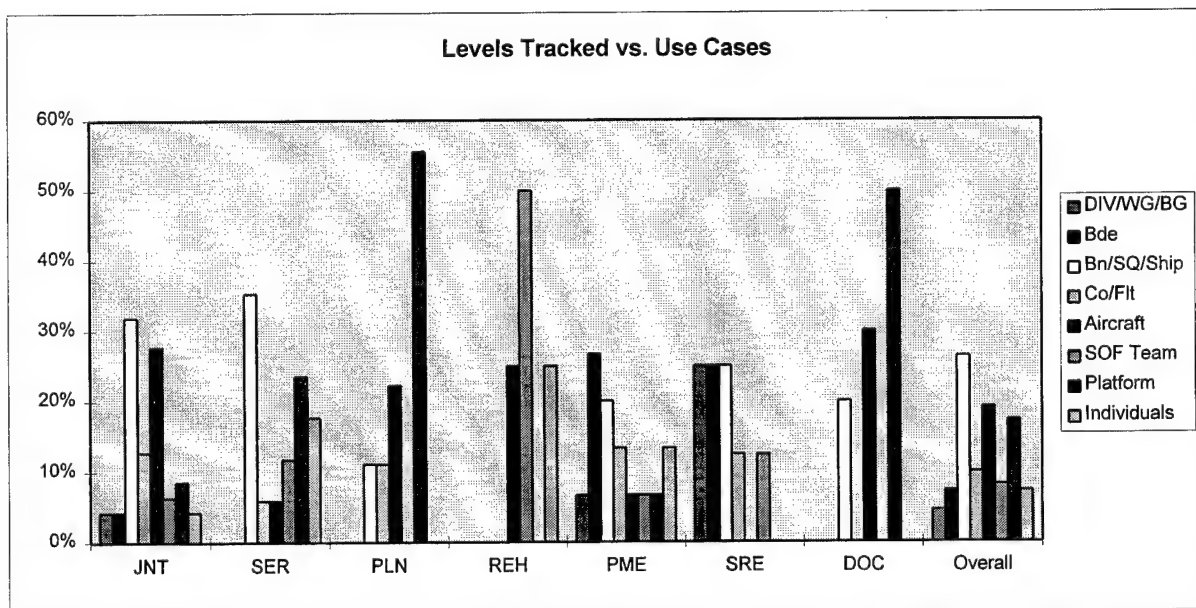
Levels Tracked vs. Use Cases

JNT - CINC/JTF/Component/Agency Training
SER - Service/Agency Training
PLN - Planning and Analysis
REH - Crew/Team Rehearsal

PME - Professional Military Education
SRE - Senior Officer Education
DOC - Doctrinal Development

User Location

Table 22

|	JNT	SER	PLN	REH	PME	SRE	DOC	Overall
One	12.9%	72.7%	44.4%	50.0%	36.4%	50.0%	75.0%	38.2%
Many	87.1%	27.3%	55.6%	50.0%	63.6%	50.0%	25.0%	61.8%

Note: Percentages represent number of requirements for the indicated user location vs. total number of requirements within each column.

Table 23

	JNT	SER	PLN	REH	PME	SRE	DOC	Total
One	4	8	4	1	4	2	6	29
Many	27	3	5	1	7	2	2	47
Total	31	11	9	2	11	4	8	76

Note: Figures indicate number of requirements for each user location.

Graph 11
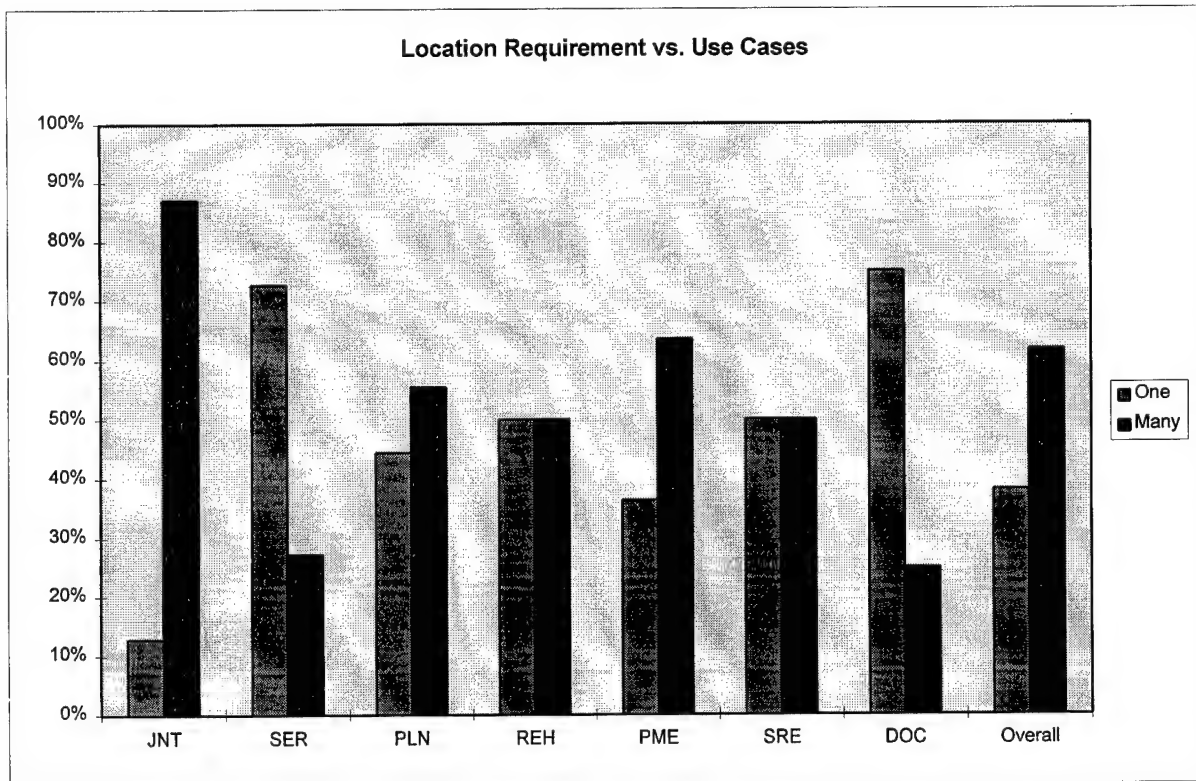
Location Requirement vs. Use Cases

JNT - CINC/JTF/Component/Agency Training
SER - Service/Agency Training
PLN - Planning and Analysis
REH - Crew/Team Rehearsal
PME - Professional Military Education
SRE - Senior Officer Education
DOC - Doctrinal Development

Visualization

Table 24

|	JNT	SER	PLN	REH	PME	SRE	DOC	Overall
2D	55.3%	71.4%	66.7%	0.0%	90.9%	75.0%	57.1%	62.8%
3D	44.7%	28.6%	33.3%	100.0%	9.1%	25.0%	42.9%	37.2%

Note: Percentages represent number of requirements for the indicated visualization vs. total number of requirements within each column.

Table 25

	JNT	SER	PLN	REH	PME	SRE	DOC	Total
2D	26	10	6	0	10	3	4	59
3D	21	4	3	2	1	1	3	35
Total	47	14	9	2	11	4	7	94

Note: Figures represent number of requirements for the indicated visualization.

Graph 12
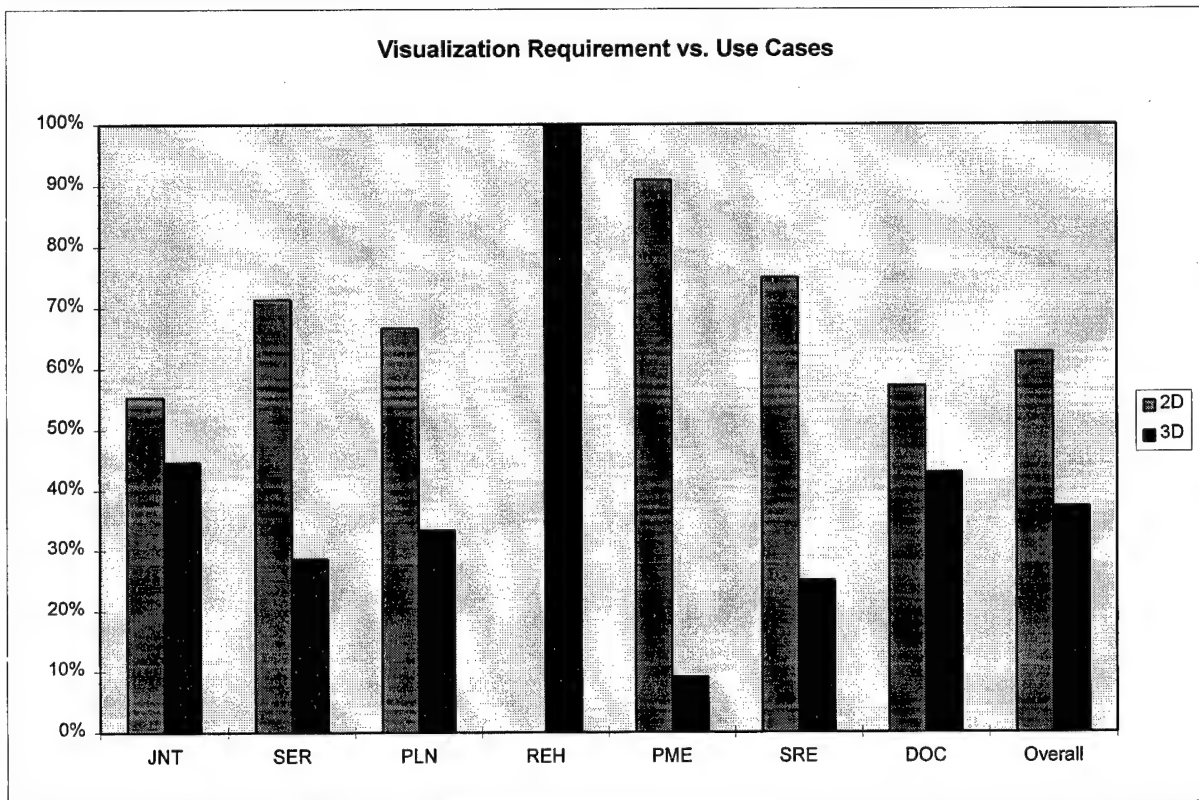
Visualization Requirement vs. Use Cases

JNT - CINC/JTF/Component/Agency Training
SER - Service/Agency Training
PLN - Planning and Analysis
REH - Crew/Team Rehearsal
PME - Professional Military Education
SRE - Senior Officer Education
DOC - Doctrinal Development

Operational Environment Data Type

Table 26

	JNT	SER	PLN	REH	PME	SRE	DOC	Overall
Historical	30.6%	42.9%	33.3%	0.0%	75.0%	66.7%	75.0%	39.0%
Climate Extremes	16.1%	4.8%	11.1%	0.0%	25.0%	0.0%	0.0%	12.2%
Observed	29.0%	28.6%	22.2%	33.3%	0.0%	0.0%	25.0%	25.2%
Forecast	24.2%	23.8%	33.3%	66.7%	0.0%	33.3%	0.0%	23.6%

Note: Percentages represent number of requirements for the indicated data type vs. total number of requirements within each column.

Table 27

	JNT	SER	PLN	REH	PME	SRE	DOC	Total
Historical	19	9	6	0	6	2	6	48
Climate Extremes	10	1	2	0	2	0	0	15
Observed	18	6	4	1	0	0	2	31
Forecast	15	5	6	2	0	1	0	29
Total	62	21	18	3	8	3	8	123

Note: Figures represent number of requirements for the indicated data type.

Graph 13
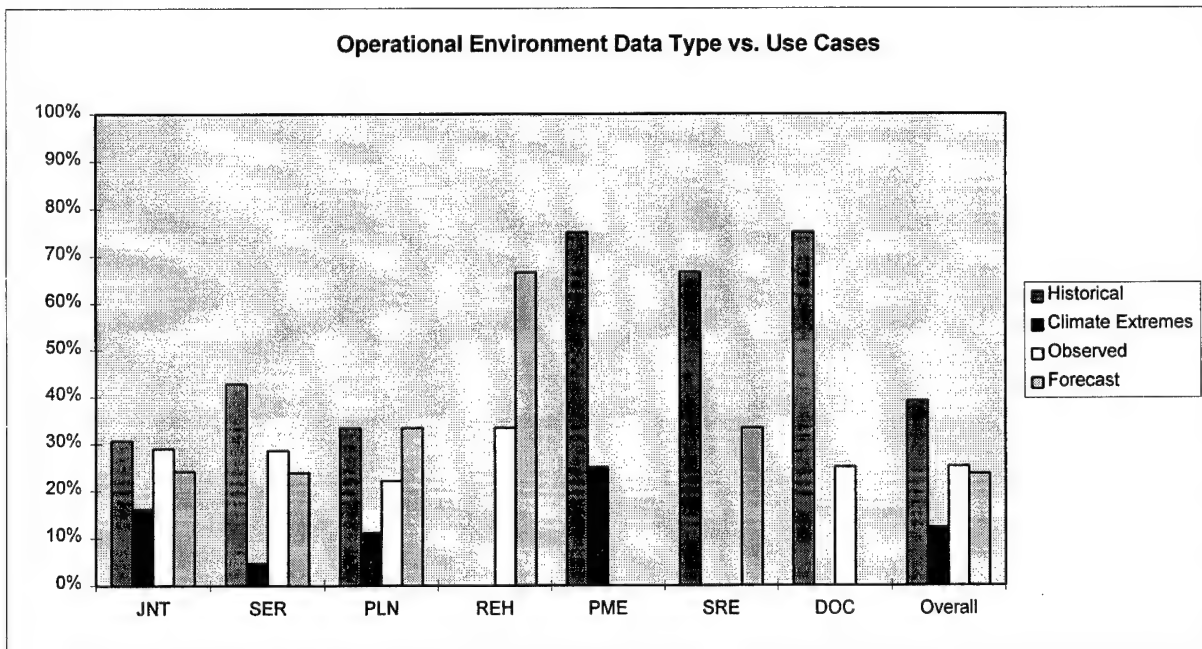
Operational Environment Data Type vs. Use Cases

JNT - CINC/JTF/Component/Agency Training
SER - Service/Agency Training
PLN - Planning and Analysis
REH - Crew/Team Rehearsal
PME - Professional Military Education
SRE - Senior Officer Education
DOC - Doctrinal Development

Operational Environment Data Format

Table 28

	JNT	SER	PLN	REH	PME	SRE	DOC	Overall
Dynamic	46.3%	52.4%	45.5%	40.0%	42.9%	28.6%	53.8%	46.4%
Interactive	48.8%	38.1%	27.3%	40.0%	35.7%	42.9%	46.2%	42.0%
Static	4.9%	9.5%	27.3%	20.0%	21.4%	28.6%	0.0%	11.6%

Note: Percentages represent number of requirements for the indicated
data format vs. total number of requirements within each column.

Table 29

	JNT	SER	PLN	REH	PME	SRE	DOC	Total
Dynamic	19	11	5	2	6	2	7	52
Interactive	20	8	3	2	5	3	6	47
Static	2	2	3	1	3	2	0	13
Total	41	21	11	5	14	7	13	112

Note: Figures represent number of requirements for the indicated data format.

Graph 14
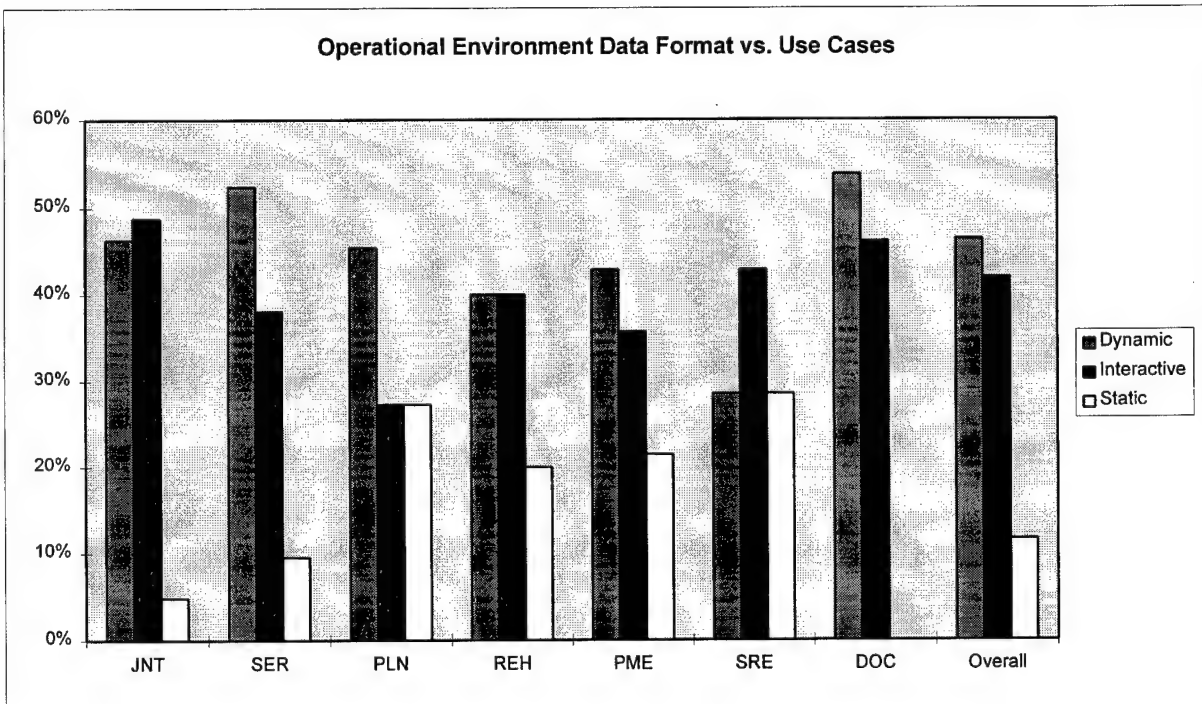
Operational Environment Data Format vs. Use Cases

JNT - CINC/JTF/Component/Agency Training
SER - Service/Agency Training
PLN - Planning and Analysis
REH - Crew/Team Rehearsal
PME - Professional Military Education
SRE - Senior Officer Education
DOC - Doctrinal Development

Operational Environment Representation

Table 30

|	JNT	SER	PLN	REH	PME	SRE	DOC	Overall
Generic	13.2%	11.8%	0.0%	0.0%	20.0%	16.7%	20.0%	13.3%
Real	52.6%	64.7%	85.7%	100.0%	60.0%	66.7%	70.0%	62.2%
Real-Displaced	26.3%	17.6%	0.0%	0.0%	20.0%	16.7%	10.0%	18.9%
Other	7.9%	5.9%	14.3%	0.0%	0.0%	0.0%	0.0%	5.6%

Note: Percentages represent number of requirements for the indicated representation vs. total number of requirements within each column.

Table 31

	JNT	SER	PLN	REH	PME	SRE	DOC	Total
Generic	5	2	0	0	2	1	2	12
Real	20	11	6	2	6	4	7	56
Real-Displaced	10	3	0	0	2	1	1	17
Other	3	1	1	0	0	0	0	5
Total	38	17	7	2	10	6	10	90

Note: Figures represent number of requirements for the indicated representation.

Graph 15
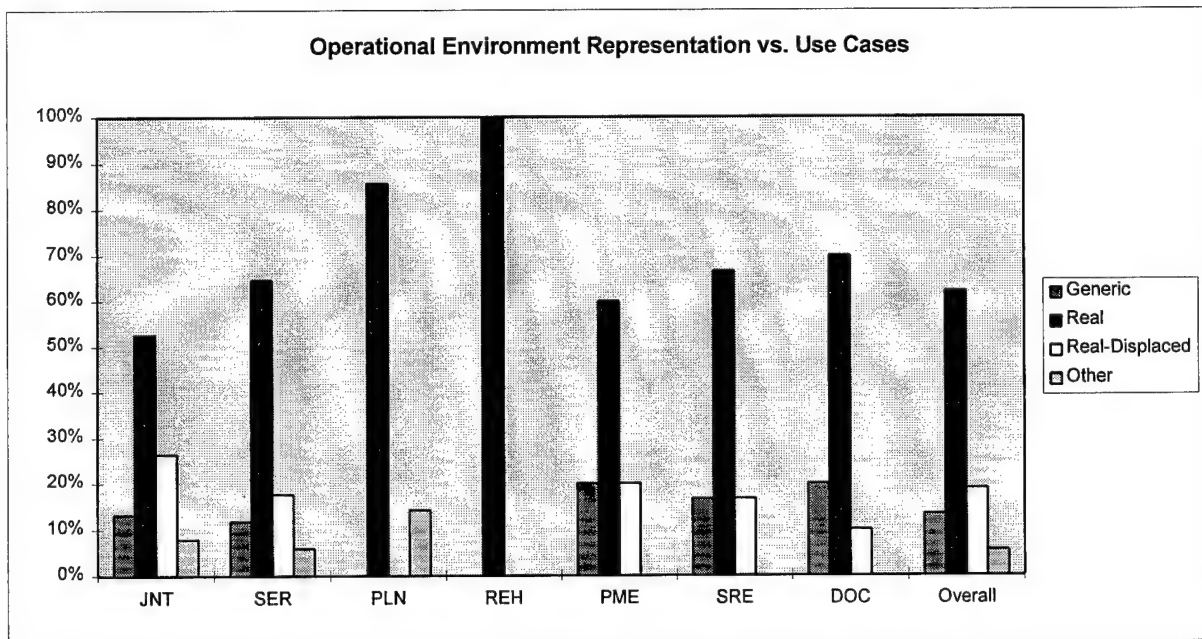
Operational Environment Representation vs. Use Cases

JNT - CINC/JTF/Component/Agency Training
SER - Service/Agency Training
PLN - Planning and Analysis
REH - Crew/Team Rehearsal
PME - Professional Military Education
SRE - Senior Officer Education
DOC - Doctrinal Development

Security Levels

Table 32

	JNT	SER	PLN	REH	PME	SRE	DOC	Overall
Top Secret	9.7%	5.6%	14.3%	50.0%	0.0%	20.0%	16.7%	9.9%
Secret	32.3%	33.3%	28.6%	0.0%	41.7%	20.0%	83.3%	35.8%
Unclassified	3.2%	33.3%	0.0%	0.0%	50.0%	20.0%	0.0%	17.3%
Multi-level	54.8%	27.8%	57.1%	50.0%	8.3%	40.0%	0.0%	37.0%

Note: Percentages represent number of requirements for the indicated
security level vs. total number of requirements within each column.

Table 33

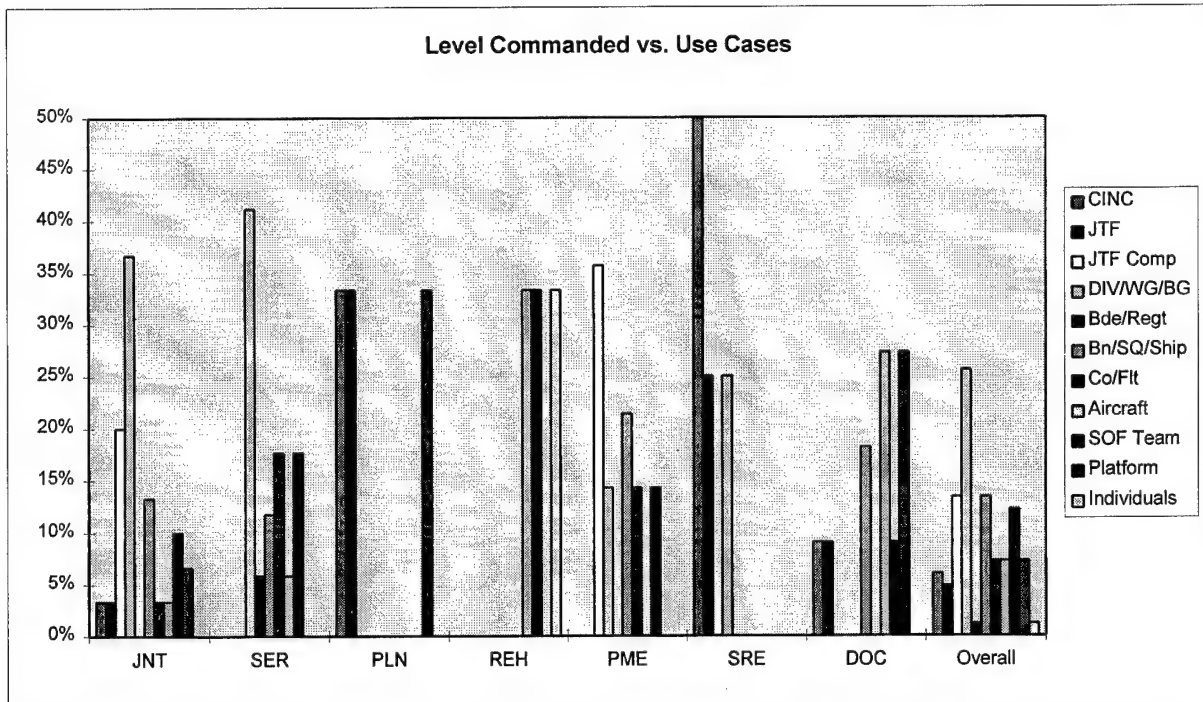|	JNT	SER	PLN	REH	PME	SRE	DOC	Total
Top Secret	3	1	1	1	0	1	1	8
Secret	10	6	2	0	5	1	5	29
Unclassified	1	6	0	0	6	1	0	14
Multi-level	17	5	4	1	1	2	0	30
Total	31	18	7	2	12	5	6	81

Note: Figures represent number of requirements for the indicated security level.

Graph 16
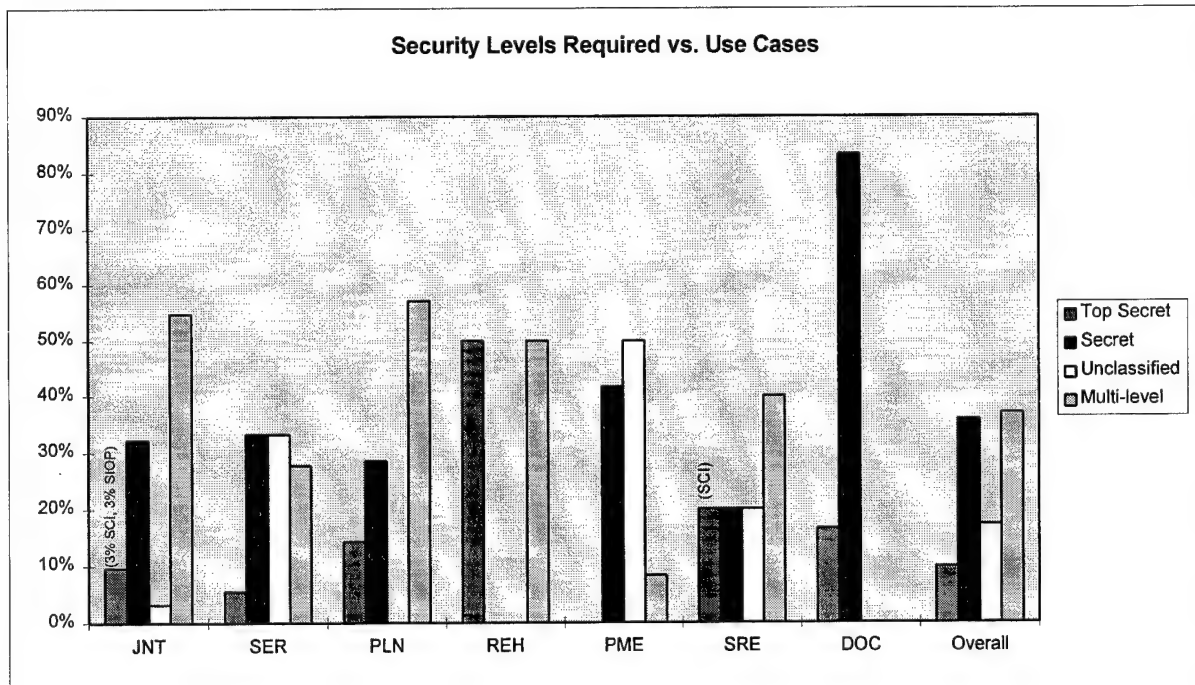
Security Levels Required vs. Use Cases

JNT - CINC/JTF/Component/Agency Training
SER - Service/Agency Training
PLN - Planning and Analysis
REH - Crew/Team Rehearsal
PME - Professional Military Education
SRE - Senior Officer Education
DOC - Doctrinal Development

Trainer/Operator

Table 34

	JNT	SER	PLN	REH	PME	SRE	DOC	Overall
Organic	34.4%	58.3%	55.6%	100.0%	81.8%	50.0%	12.5%	47.4%
External	0.0%	8.3%	0.0%	0.0%	0.0%	0.0%	12.5%	2.6%
Combination	65.6%	33.3%	44.4%	0.0%	18.2%	50.0%	75.0%	50.0%

Note: Percentages represent number of requirements for the indicated trainer/operator support vs. total number of requirements within each column.

Table 35

	JNT	SER	PLN	REH	PME	SRE	DOC	Total
Organic	11	7	5	2	9	2	1	37
External	0	1	0	0	0	0	1	2
Combination	21	4	4	0	2	2	6	39
Total	32	12	9	2	11	4	8	78

Note: Figures represent number of requirements for the indicated trainer/operator support.

Graph 17
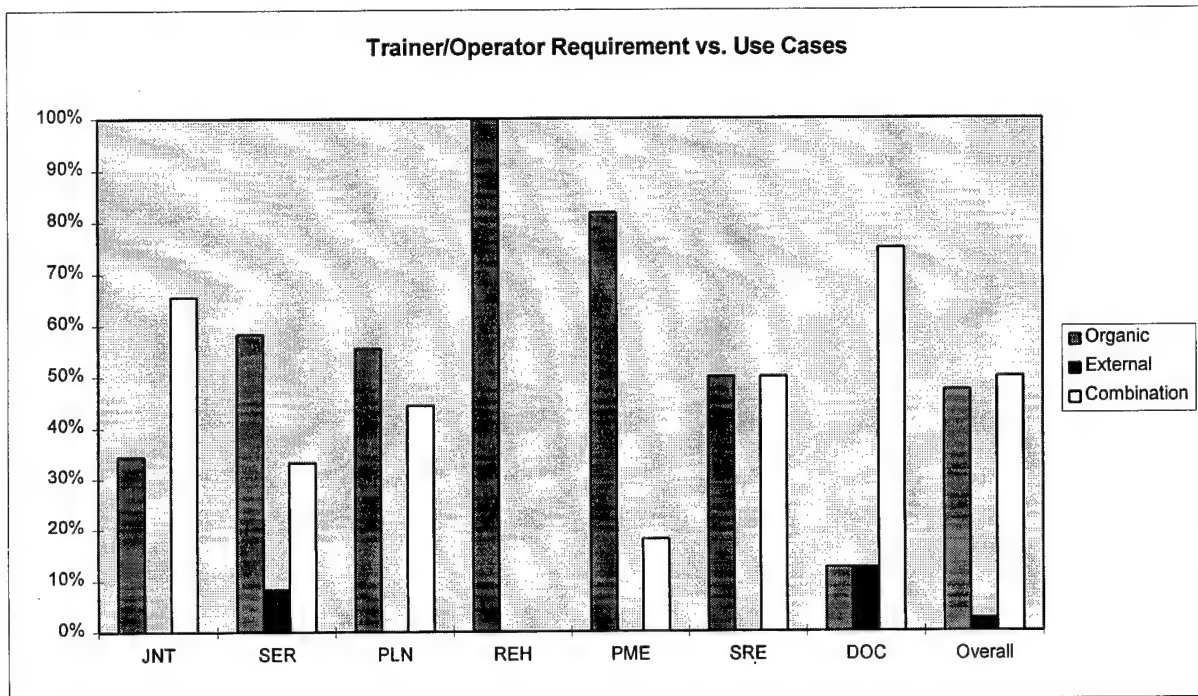
Trainer/Operator Requirement vs. Use Cases

JNT - CINC/JTF/Component/Agency Training
SER - Service/Agency Training
PLN - Planning and Analysis
REH - Crew/Team Rehearsal
PME - Professional Military Education
SRE - Senior Officer Education
DOC - Doctrinal Development

Simulation Time

Table 36

|	JNT	SER	PLN	REH	PME	SRE	DOC	Overall
Slower than Real Time Only	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Real Time Only	13.2%	50.0%	0.0%	50.0%	27.3%	0.0%	12.5%	18.1%
Faster than Real Time Only	10.5%	10.0%	66.7%	0.0%	45.5%	60.0%	12.5%	24.1%
Variable	76.3%	40.0%	33.3%	50.0%	27.3%	40.0%	75.0%	57.8%

Note: Percentages represent number of requirements for the indicated level of time advance vs. total number of requirements within each column.

Table 37

	JNT	SER	PLN	REH	PME	SRE	DOC	Total
Slower than Real Time Only	0	0	0	0	0	0	0	0
Real Time Only	5	5	0	1	3	0	1	15
Faster than Real Time Only	4	1	6	0	5	3	1	20
Variable	29	4	3	1	3	2	6	48
Total	38	10	9	2	11	5	8	83

Note: Figures represent number of requirements for the indicated level of time advance.

Graph 18
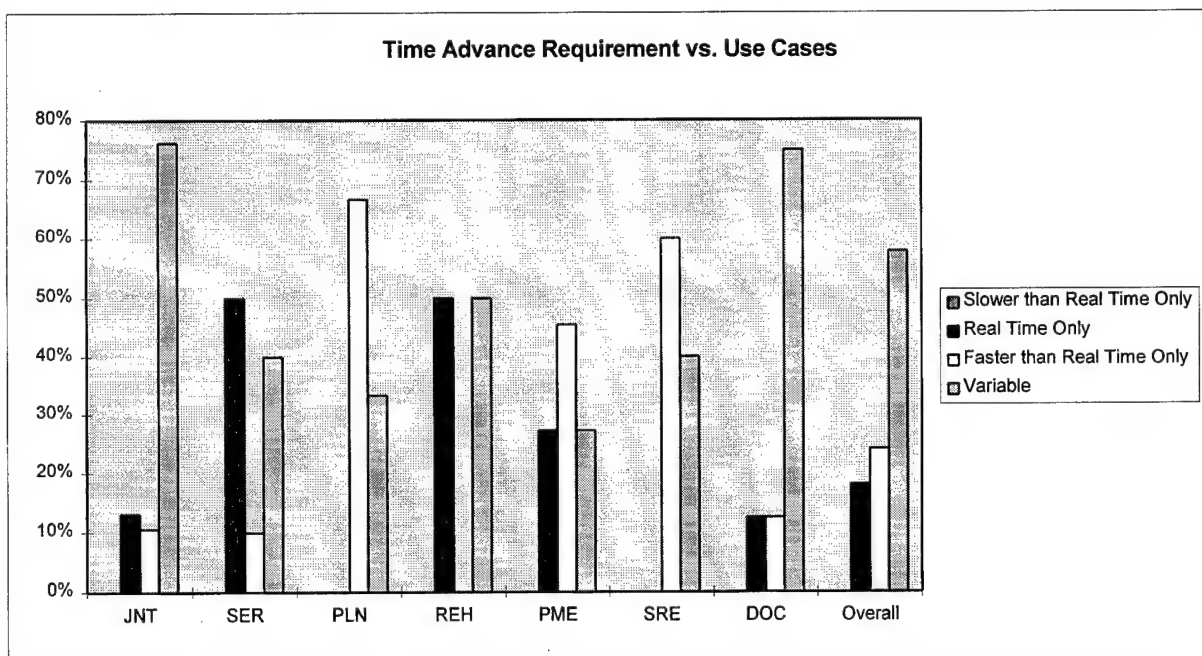
Time Advance Requirement vs. Use Cases

JNT - CINC/JTF/Component/Agency Training
SER - Service/Agency Training
PLN - Planning and Analysis
REH - Crew/Team Rehearsal
PME - Professional Military Education
SRE - Senior Officer Education
DOC - Doctrinal Development

Simulation Time

Table 38

|	JNT	SER	PLN	REH	PME	SRE	DOC	Overall
Continuous Only	13.9%	10.0%	33.3%	0.0%	15.4%	0.0%	37.5%	17.1%
Step Back Only	8.3%	40.0%	22.2%	0.0%	7.7%	0.0%	0.0%	12.2%
Jump Forward Only	0.0%	0.0%	22.2%	0.0%	0.0%	25.0%	0.0%	3.7%
Step and Jump	77.8%	50.0%	22.2%	100.0%	76.9%	75.0%	62.5%	67.1%

Note: Percentages represent number of requirements for the indicated level of time continuity vs. total number of requirements within each column.

Table 39

	JNT	SER	PLN	REH	PME	SRE	DOC	Total
Continuous Only	5	1	3	0	2	0	3	14
Step Back Only	3	4	2	0	1	0	0	10
Jump Forward Only	0	0	2	0	0	1	0	3
Step and Jump	28	5	2	2	10	3	5	55
Total	36	10	9	2	13	4	8	82

Note: Figures represent number of requirements for the indicated level of time continuity.

Graph 19
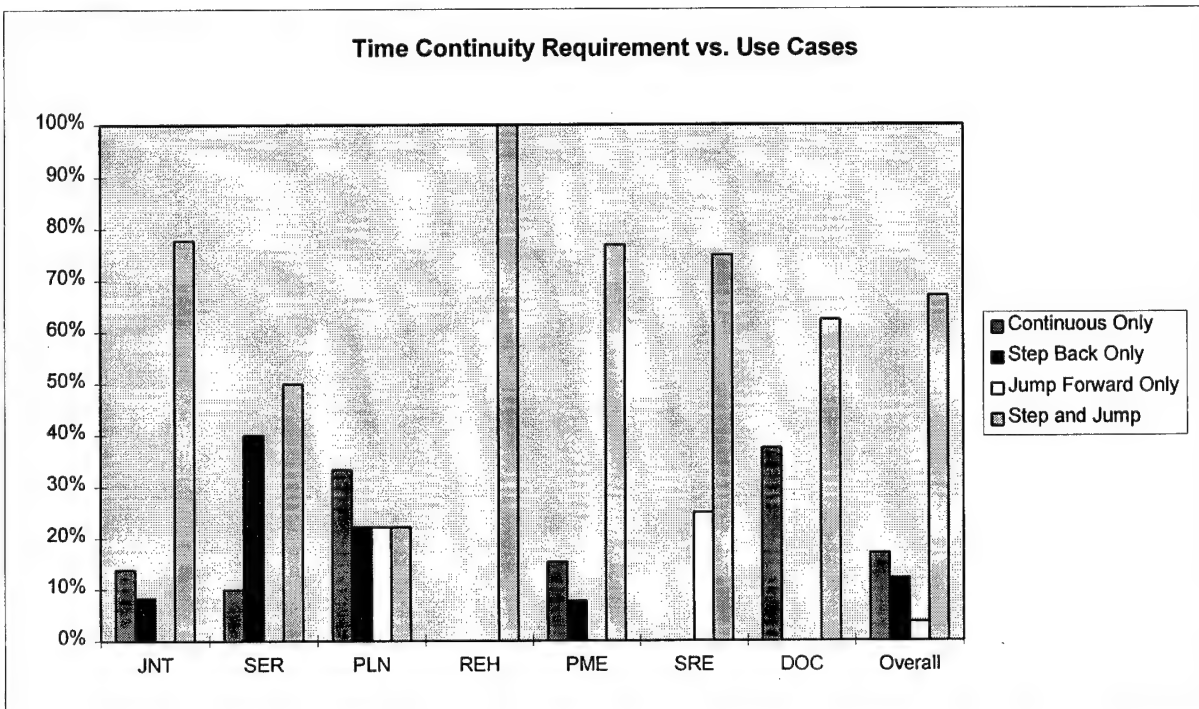
Time Continuity Requirement vs. Use Cases

JNT - CINC/JTF/Component/Agency Training
SER - Service/Agency Training
PLN - Planning and Analysis
REH - Crew/Team Rehearsal
PME - Professional Military Education
SRE - Senior Officer Education
DOC - Doctrinal Development

Pre-Event Performance Feedback

Table 40

|	JNT	SER	PLN	REH	PME	SRE	DOC	Overall
Automated AAR Collection	55.0%	54.5%	42.9%	0.0%	100.0%	50.0%	40.0%	54.4%
Links to Joint Training System	15.0%	18.2%	42.9%	0.0%	0.0%	25.0%	30.0%	19.0%
Links to Service Training System	15.0%	18.2%	14.3%	0.0%	0.0%	25.0%	30.0%	16.5%
Links to Historical Data	7.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	3.8%
Links to Doctrinal Data	7.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	3.8%
Rule-Based	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	1.3%
None	0.0%	9.1%	0.0%	0.0%	0.0%	0.0%	0.0%	1.3%

Note: Percentages represent number of requirements for the indicated capability vs. total number of requirements within each column.

Table 41

	JNT	SER	PLN	REH	PME	SRE	DOC	Total
Automated AAR Collection	22	6	3	0	6	2	4	43
Links to Joint Training System	6	2	3	0	0	1	3	15
Links to Service Training System	6	2	1	0	0	1	3	13
Links to Historical Data	3	0	0	0	0	0	0	3
Links to Doctrinal Data	3	0	0	0	0	0	0	3
Rule-Based	0	0	0	1	0	0	0	1
None	0	1	0	0	0	0	0	1
Total	40	11	7	1	6	4	10	79

Note: Figures represent number of requirements for the indicated capability.

Graph 20
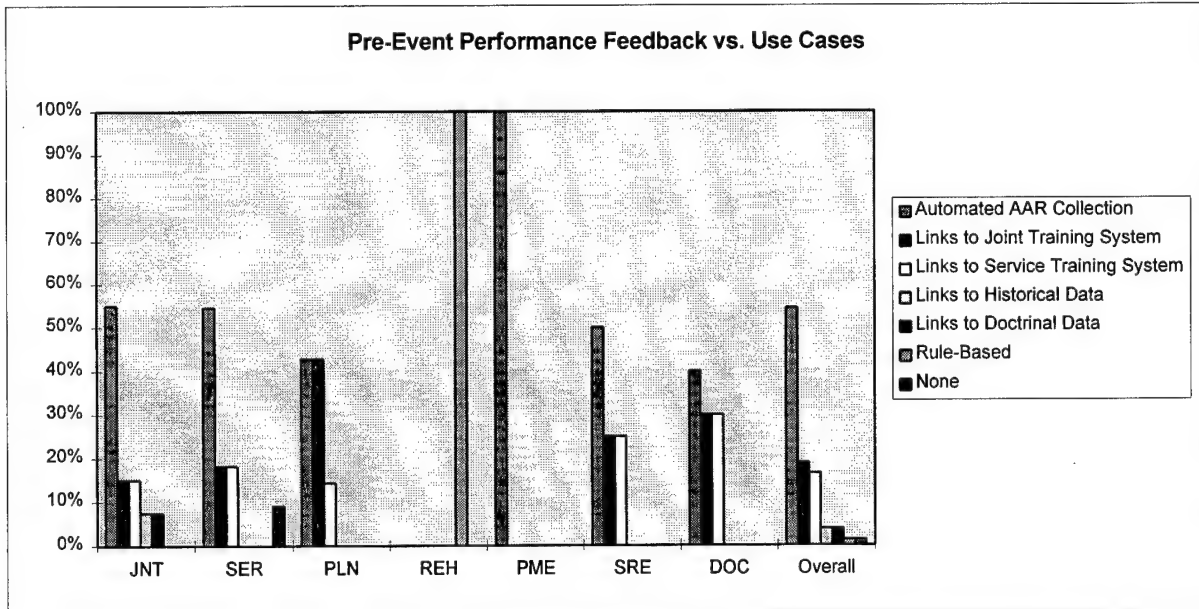
Pre-Event Performance Feedback vs. Use Cases

JNT - CINC/JTF/Component/Agency Training
SER - Service/Agency Training
PLN - Planning and Analysis
REH - Crew/Team Rehearsal

PME - Professional Military Education
SRE - Senior Officer Education
DOC - Doctrinal Development

Execution Performance Feedback

Table 42

|	JNT	SER	PLN	REH	PME	SRE	DOC	Overall
Interactive	41.4%	41.2%	25.0%	33.3%	46.7%	33.3%	44.4%	40.7%
Online Cues	32.8%	41.2%	12.5%	33.3%	46.7%	33.3%	44.4%	35.4%
Rule-Based	24.1%	17.6%	62.5%	33.3%	6.7%	33.3%	11.1%	23.0%
Automated	1.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.9%

Note: Percentages represent number of requirements for the indicated capability vs. total number of requirements within each column.

Table 43

	JNT	SER	PLN	REH	PME	SRE	DOC	Total
Interactive	24	7	2	1	7	1	4	46
Online Cues	19	7	1	1	7	1	4	40
Rule-Based	14	3	5	1	1	1	1	26
Automated	1	0	0	0	0	0	0	1
Total	58	17	8	3	15	3	9	113

Note: Figures represent number of requirements for the indicated capability.

Graph 21
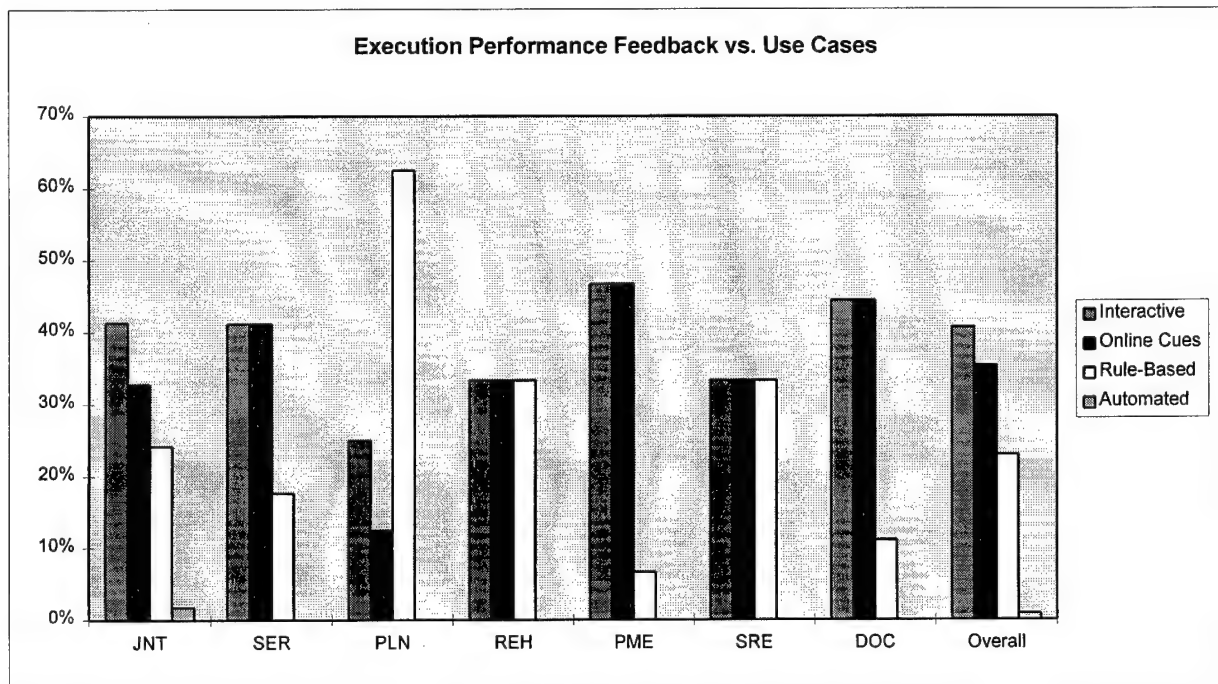
JNT - CINC/JTF/Component/Agency Training
SER - Service/Agency Training
PLN - Planning and Analysis
REH - Crew/Team Rehearsal
PME - Professional Military Education
SRE - Senior Officer Education
DOC - Doctrinal Development

Post-Event Performance Feedback

Table 44

|	JNT	SER	PLN	REH	PME	SRE	DOC	Overall
Automated AAR	18.6%	35.0%	9.1%	66.7%	38.1%	50.0%	14.3%	25.6%
Automated Graphics	44.1%	30.0%	45.5%	0.0%	28.6%	25.0%	14.3%	36.0%
Postprocessing	33.9%	25.0%	36.4%	0.0%	33.3%	25.0%	71.4%	33.6%
Complete Replay	1.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.8%
Replay Using 3D	1.7%	5.0%	0.0%	33.3%	0.0%	0.0%	0.0%	2.4%
Tailored Reports	0.0%	5.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.8%
Statistical Processing	0.0%	0.0%	9.1%	0.0%	0.0%	0.0%	0.0%	0.8%

Note: Percentages represent number of requirements for the indicated capability vs. total number of requirements within each column.

Table 45

	JNT	SER	PLN	REH	PME	SRE	DOC	Total
Automated AAR	11	7	1	2	8	2	1	32
Automated Graphics	26	6	5	0	6	1	1	45
Postprocessing	20	5	4	0	7	1	5	42
Complete Replay	1	0	0	0	0	0	0	1
Replay Using 3D	1	1	0	1	0	0	0	3
Tailored Reports	0	1	0	0	0	0	0	1
Statistical Processing	0	0	1	0	0	0	0	1
Total	59	20	11	3	21	4	7	125

Note: Figures represent number of requirements for the indicated capability.

Graph 22
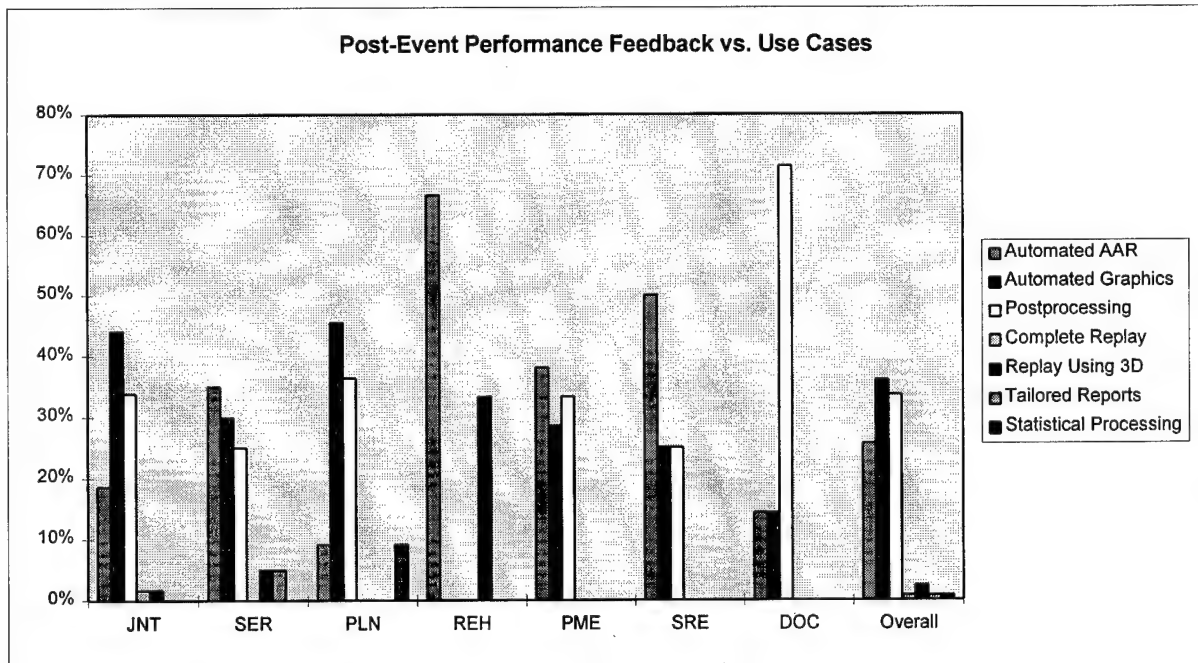
Post-Event Performance Feedback vs. Use Cases

JNT - CINC/JTF/Component/Agency Training
SER - Service/Agency Training
PLN - Planning and Analysis
REH - Crew/Team Rehearsal

PME - Professional Military Education
SRE - Senior Officer Education
DOC - Doctrinal Development

C4I Interface Requirements

This enclosure lists C4I systems required by users to interface with JSIMS. The matrix entitled "JSIMS Use Case C4I Interface Requirements" shows the systems required by each consolidated use case. The matrix entitled "JSIMS C4I Systems Migration" is based on information contained in the DISA Defense Integrated Support Tools (DIST) database. Although DIST lacks information on many of the systems, the database provides information that shows some of the required systems will be out of the inventory by the time JSIMS is fielded. In addition, this matrix shows that some systems are scheduled to be out of the inventory by the year 2010. Decisions will have to be made regarding interface of these systems with JSIMS. That information is as follows:

1. C4I Systems that will be retired or replaced by the year 2000 are:
    -   a portion of AGCCS.
    -   a portion of ATCCS.
    -   a portion of AFATDS, which is scheduled to migrate to an undefined system on 1 Dec 2000.
    -   a portion of STACCS, which was scheduled for migration to AGCCS on 1 Sep 95.
    -   TIBS, which is scheduled to migrate to IBS on 1 Apr 97.
    -   AEGIS, which was scheduled to migrate to MDITDS on 1 Oct 96.
    -   MATT, which is scheduled to migrate to JTT on 1 Apr 97.
    -   RMS, which was to have migrated to an unidentified system in Jun 96.
    -   IPA, which is scheduled to migrate to IPL on 1 Sep 97.
    -   ETUT, which was scheduled to migrate to ASAS 1 Sep 95.

2. C4I systems which will migrate between 2000 and 1 Jan 2010 to an identified system:
    -   MCS to ABCS
    -   AFATDS to ABCS
    -   CSSCS to ABCS
    -   ASAS (2 parts) to ABCS

3. C4I systems which will migrate to an undefined system between 2000 and 1 Jan 2010:
    -   CTAPS
    -   CIS
    -   IBS
    -   JMCIS (in 2000)
    -   IAS
    -   JCMT
    -   MDS

– SOFPARS

4. The following systems were in the DIST database, but had no retirement or migration information:
   – FBCB2
   – TCO
   – JWICS
   – JDISS
   – CAPS
   – LOCE
   – DSSCS
   – IDHSC
   – EPDS

5. The following systems had no entries in the DIST database:
   – GBS
   – JTAV
   – TDDS
   – TES
   – ALERT
   – JTAGS
   – TACDAR
   – ADSI
   – DMS
   – CEC
   – INTELLINK
   – JIVA
   – JPAV
   – JTAV
   – PASS-K
   – RSLT
   – TSOC
   – MITT
   – TRAP

JWFC needs to coordinate with DISA to gather information not currently contained in the DIST database.

JSIMS Use Case C4I Interface Requirements							
	UC1	UC2	UC3	UC4	UC5	UC6	UC7
ABCS	x	x					
ADSI	x						
Aegis							x
AFATDS	x	x					
AGCCS	x						
ALERT	x						
ASAS	x		x				
AUTODIN/DSSCS	x		x				
CAPS	x	x	x		x	x	x
CCDPS-R	x		x				x
CEC	x						
CTAPS	x	x	x	x	x	x	x
DMS	x	x	x				
EADSIM	x		x				x
EMBASSY C4I				x			
GBS	x		x				
GCCS	x	x	x	x	x	x	x
GCSS				x			
IAS	x						
INTELLINK	x						
JCMT	x						
JDISS	x						
JIVA	x						
JMCIS	x	x	x	x	x	x	x
JPAV	x						
JTAGS	x						
JTAV	x						
JWICS	x						
LOCE	x						
MAGTF C4I	x						
MDS	x						
MIDB	x						
MILSTAR	x		x				x
MMATT				x			
PASS-K	x						
RMS	x						
RSLT	x						
SABRE				x			
SIPRNET	x	x					
SOFPARS	x	x	x		x	x	x
STACCS	x	x	x		x	x	x
SYS CONNECT				x			
TACAMS	x						
TADIL A	x	x					
TADIL B	x						
TAMPS		x					
TBMCS	x						
TDDS				x			
TDDS(TRAP)	x						
TESS	x						
TIBS	x						
TRE	x						
TSOC	x						
WCCS			x				

	JSIMS C4I Systems Migration					
C4I SYSTEM	NAME	OPN START DT	MIGR BEGIN DT	MIGR END DT	MIGRATION TO SYSTEM NAME	ACRONYM
GCCS	Global Command and Control System	1-Jan-94	1-Jan-10	1-Jan-10		
ABCS	Army Battle Command System					
AGCCS	Army GCCS					
AGCCS	Army Global Command and Control Systems	1-Sep-95	1-Jan-10	1-Jan-10		
AGCCS	Army Global Command and Control Systems	1-Sep-91	1-Mar-92	1-Mar-92		
FBCB2	Force 21 Battle Command Brigade and Below					
ATCCS	Army Tactical Command and Control System	1-Sep-91	1-Mar-97	1-Mar-97	Trans Coord Auto. Info.Mgmt. Syst. II	TC-AIMS II
ATTCS 2	Army Tactical Command and Control System					
ATTCS/MCS	Army Tactical C2 Sys / Manuever Cntrl Sys.					
MCS	Maneuver Control System	1-Jun-98	1-Jan-10	1-Jan-10		ABCS
AFATDS	Advanced Field Artillery Tactical Data System	1-Aug-95	1-Jan-10	1-Jan-10		
AFATDS	Advanced Field Artillery Tactical Data System	1-Jan-98	1-Dec-00	1-Dec-00		ABCS
CSSCS	Combat Service Support Control System	1-Jan-97	1-Jan-10	1-Jan-10		ABCS
ASAS	All Source Analysis System	1-Sep-91	1-Jan-10	1-Jan-10		ABCS
ASAS	All Source Analysis System	1-Jan-92	1-Jan-10	1-Jan-10		ABCS
STACCS	Std Theater Army Command and Control Sys	1-Sep-91	1-Jan-10	1-Jan-10		
STACCS	Std Theater Army Command and Control Sys	1-Sep-91	1-Sep-95	1-Sep-95	Army Global Command and Control Sys	AGCCS
CTAPS	Contingency Theater Automated Planning Sys	1-Oct-92	1-Jan-10	1-Jan-10		
GBS						
JTAV						
CIS	Combat Intelligence Systems	1-Apr-97	1-Jan-10	1-Jan-10		
IBS	Integrated Broadcast System	1-Apr-97	1-Jan-10	1-Jan-10		
TDDS						
TIBS	Tactical Information Broadcast Service	1-Sep-91	1-Apr-96	1-Apr-97	Integrated Broadcast System	IBS
TES						
ALERT						
JTAGS						
TACDAR						
JMCIS	Joint Maritime Comamnd Information System					
TCO	Tactical Combat Operations System	1-Oct-95	1-Dec-00	1-Dec-00		
JWICS	Joint Worldwide Intell Communications System					
JDISS	Joint Deployable Intelligence Support System					
DIN						
VOICE						
AEGIS	AEGIS	1-Sep-91	1-Apr-96	1-Oct-96	Migration Def Intell Threat Data Sys	MDITDS
ADSI						
AUTODIN	ACCOUNTING AUTODIN SYSTEM					
DMS						
CAPS	C4IFTW Automated Planning System					
CEC						
IAS	Intelligence Analysis System	1-Jun-96	1-Jan-10	1-Jan-10		
IAS	Intelligence Analysis System	1-Sep-96	1-Jan-10	1-Jan-10		
INTELLINK						
JCMT	Joint Collection Management Tools	1-Sep-91	1-Jan-10	1-Jan-10		
JIVA						
JPAV						
JTAV						
LOCE	Linked Operations/Intelligence Centers Europe					
MDS	Message Distribution System	1-Sep-91	1-Jan-10	1-Jan-10		
MATT	Multimision Advanced Tactical Terminal	9-Jan-91	1-Apr-97	1-Apr-97	Joint Tactical Terminal	JTT
PASS-K						
RMS	Requirements Management System					
RMS	Requirements Management System	1-Jun-96	1-Jun-96	1-Jun-96		
RSLT						
SOFPARS	SOF Operational Planning and Rehearsal Sys	1-Jul-96	1-Jan-10	1-Jan-10		
TBMCS	Theater Battle Management Core Systems					
TSOC						
WCCS	Wing Command and Control System	1-Jun-94	1-Jan-10	1-Jan-10		
DSSCS	Defense Special Security Comm System					
IPA	Image Product Archive	1-Sep-91	1-Sep-97	1-Sep-97	Image Product Library	IPL
IDHSC	Image Data Handling System - Communications					
EPDS	Electronic Processing and Dissemination Sys					
ETUT	Enhanced Tactical User's Terminal	1-Sep-91	1-Sep-95	1-Sep-95	All Source Analysis System	ASAS

Other Required Interfaces

This enclosure, which is organized by consolidated use case, shows other systems required by users to interface with JSIMS. Lack of time and resources did not allow any more analysis to be done. This area requires additional work.

Other Required Interfaces

Times Identified	Item Identified
	CINC/JTF/Component Training
6	AMP
5	BADD
6	CIS
6	COMPASS
5	DAAS
5	DART
5	ELIST
6	EPDS
6	ETUT
4	HN Planning systems
6	IDHS
6	IPA
6	JCMT
2	JICM
5	JL-ACTD
5	JLEB
5	JTAV
6	LAD
5	LOGSAFE
6	MIDS IDB
6	Mission Planning Systems
6	MITT
5	Multiple Simulation Centers CONUS/OCONUS
4	NATO Planning Systems
2	Nuclear disaster
6	SIGS
6	TADIXS B
6	TARGET
6	TRAP
	AFATDS AFLOAT PLANNING SYSTEM TEAMS
	Agency models
	AWACS
	Blue Flag

	Cobra Ball
	DIS Interface
	EPLRS
4	Flight simulators
	FMS Planning system
	FORCE TEWA
	G6
	HRM
	Interface with ACTD programs
	JCTCS
	JIM's/SIGS
	JMCIS TDAs
4	Live ranges
2	Mission Planning Systems
	MTWS
	OPFOR C4I Systems
	SAR/ISAR
6	Ships at sea
	Special ops planning/intelligence systems
2	TADILS (A,B,J)
	TAMP
	Tanks
	UN Planning Systems
Service/Agency Level Training
	AFATDS AFLOAT PLANNING SYSTEM TEAMS
	Consider AFMMS algorithms, or software for route planning
	DIS Interface
	East coast EW range
	Flight simulation
	FORCE TEWA
	HRM
2	JCTCS
	JMCIS TDAs
	LATR
	Live ranges
4	Mission Planning Systems
	MTWS
	National/DoD collection support system interface
	S+C112imulators: CVAT, PTT

	Shallow water range system
3	Ships at sea
	Space Mission Planning System
	TADILS (A,B,J)
	TAMP

Planning and Analysis	
	DIA Collection Management System
	DSI
2	Joint Collection Management Tool
2	Mission Planning Systems
	Real-world Comp Sys Databases
2	Synthetic Image Generation Systems

Crew/Team Rehearsal	
	Flight simulators
	JSIMS provides Conditions
	Ships at sea
	Simulators
	Training Audience in Simulations
	Virtual Simulators

Other Military Education	
	Connect between sites
	Education of Feedback in Exercises
	Enhanced logistics play
	Enhanced space play
	Enhanced strategic effects of EW and IW
	Evaluate ops (historical)
	In-house tools
	Intelligence
	Internet
	JIVA
	JTENS CBT
	OSIS
	Space related emulations

Senior Military Education	
	Army Industrial base model
	CAM

	JFACC planning tool
	JICM
	Need a more robust model of strategic assets and industrial base issues
	Nuclear Model
	Spacecom model on satellites
	Doctrine Development
4	Constuctive, virtual, live
4	Live ranges
4	Ships at sea
5	Aegis simulator
	Hardware in laboratories
	Other Mission Planning Systems
	OTHGOLD
	Ranges form everything simulated to live mock-ups (anechoic chamber for missile warhead)
	TACELINT
	TACREP
	TADIL
	TENA (T&E network architecture)
	TIBS
	TRAP

6

Data on Existing Support for Simulation-Assisted Events

This enclosure, which is derived from page 3 of the Use Case Worksheet, is a collection of consolidated user statements regarding data on existing support on simulation-assisted events. Lack of time and resources did not allow any more analysis to be done. This area requires additional work. Furthermore, JWFC has the requirement to obtain data where none has been submitted.

1. Consolidated Use Case #1.

   Event Preparation

   Planning and Coordination: Ranges from 6 months to 12 man years
   Data Base and Testing: Ranges from 1 week to 2 man years
   Event Spin-Up: Ranges from 1 week to 2.5 man years

   Execution

   Event Control: Ranges from 5 days to 6.5 man years

   Post Event Activity

   Spin Down: Ranges from 1 day to .5 man year
   AAR and Reporting: Ranges from 1 day to 2 man years

   Cost Drivers

   Airlift
   Game development
   TDY
   Equipment
   Communications
   Satellite availability
   Tech reps
   Base operations costs
   At sea costs
   Surveys

   Support Constraints

   Availability of key players
   Manpower
   Time
   Facilities
   Equipment
   Communications
   Range availability
   Multiple languages

Desired Improvements

Model nuclear detonations
Automated scripting
BDA
PSYOPS scorability
High fidelity representation of: COMINT, ELINT, HUMINT, IMINT, RADINT,
     MASINT, and Operational Reports
Missile launch capability
GPS
Faster database builds
Train smaller groups more frequently
Automate and standardize databases
Higher fidelity and resolution
Less dependence on sim facilities
Less dependence on sim controllers
Flexibility to incorporate STOW and other technologies
Automated fill from Obs

2. Consolidated Use Case # 2.

Event Preparation

Event Spin-up: 3 days

Execution

No data provided

Cost Drivers

Travel
Database preparation
Observers
Equipment
Ship space

Support Constraints

Database development
Number of sim controllers
Facilities
Equipment
Communications

<u>Desired Improvements</u>

Automated force laydown
Increase resolution
Reduce planning time
Increase trainer to student ratio
Generate scenario automatically
Automate effectiveness measures

3. Consolidated Use Case #3.

<u>Event Preparation</u>

Planning and Coordination: Ranges from 96 hours to 10 man years
Event Spin-up: 1 week

<u>Execution</u>

Event Control: 112 man hours

<u>Post Event Activity</u>

AAR and Reporting: 30 minutes

<u>Cost Drivers</u>

Communications
Database interface
Equipment

<u>Support Constraints</u>

Access to data
Time
Facilities
Equipment
Cannot structure intelligence collection activities

<u>Desired Improvements</u>

Automated force laydown
Reduce setup time
Reduce planning time

Flexibility to incorporate STOW and other emerging technologies

4. Consolidated Use Case #4.

   Event Preparation

No data

   Execution

No data

   Post Event Activity

No data

   Cost Drivers

Personnel
Database with virtual capability
Ship space

   Support Constraints

No data

   Desired Improvements

No data

5. Consolidated Use Case #5.

   Event Preparation

Planning and Coordination: 12 man years

   Execution

Event Control: 8 man years

Post Event Activity

No data

Cost Drivers

Software modifications
Data generation
Hardware

Support Constraints

Time
Facilities
Equipment

Desired Improvements

Automated force laydown
Improve cost drivers
Reduce planning time
Reduce dependence on sim controllers
Hardware

6. Consolidated Use Case #6.

Event Preparation

Planning and Coordination: 12 man years
Database and Testing: 2 man years
Event Spin-up: 2.5 man years

Execution

Event Control: 6.5 man years

Post Event Activity

Spin Down: .5 man year
AAR and Reporting: 2 man years

Cost Drivers

Communications

Travel
Rental of office and equipment

Support Constraints

Time
Facilities

Desired Improvements

Reduce planning time
Hardware

7. Consolidated Use Case # 7.

Event Preparation

No data

Execution

No data

Post Event Activity

No data

Cost Drivers

Software modifications
Data generation
Hardware

Support Constraints

Utilities
Facilities
Equipment
Communications
Airlift
Travel

Desired Improvements

Model nuclear detonations
Improve cost drivers
Reduce time to develop and evaluate doctrine
Reduce dependence on real world exercises to develop and evaluate doctrine
Simulate information warfare
Rapid scenario preparation
Rapid AAR

Future Training Concepts

This enclosure, which is derived from page 1 of the Use Case Worksheet, is a collection of consolidated user statements regarding emerging training concepts that users thought were pertinent to JSIMS development. Lack of time and resources did not allow any more analysis to be done. This area requires additional work.

Future Concepts

Times Identified	Item Identified
	CINC/JTF/Component Training
2	COMMS Models: satellite down to propagation
2	Integrated set of planning tools
2	Navigation/GPS model
2	TBS model for missile launch
2	Weather
	3D visualization for the training facilities
	AAR collectionSupport
	Ability to stress training audience from initiation through build-up
	Add simulated units to live forces to increase event size
	Anti-terrorist training
	Army Advanced Warfighting Experiments
	BDA fusion necessary amount of granularity/persistence
	Cooperative Engagement
	Exportability to at sea or forward deployed sites (transportable)
	Flexible ROEs
4	Force XXI
	How to track people trained; would help to create a "directory" of trained personnel for later ops.
	Imbedded Combat ID & Info Warfare
	Live to constuctive links
	Live to virtual in future
2	Mission rehearsal capability
	Multinational Interoperability without regard to Security Constraint
	Realistic depiction of intelligence process (DIMSIM)
	Reconstruction
	Robust, detailed real-world BDA
	SAFOR issues including staff functions
	Synthetic geography
	Training audience has seamless interface with C4I
	Service/Agency Level Training
	"Black Flag" (Exercise like Blue Flag but for intelligence training
	3D map
	Deployed pack-up kit

	Distributed training for reserve components
2	Exportability to at sea or forward deployed sites (transportable)
	First look capability (Tipping/Cueing)
	Indications and Warning
	On-board Trainer Integration
	Reconstruction
	SAFOR issues including staff functions
	Space related Joint Tasks
	Support 1 hour hot wash, 6 hour full debrief.
2	Synthetic geography
	Virtual Access
Planning and Analysis
	Cooperative, collaborative Analysis (Comp and video networks)
	Integrate
	Sensor to Shooter
Crew/Team Rehearsal
	Access to virtual representation of event area for all Unit Leaders
	Visual and electronic
Other Military Education
	Add more point and click capability
	Distributed education
2	Distributed wargame
5	Force XXI
	Information Warfare
	Joint Synthetic education
	Lesson Learned Review/Replay
	MSF
	Theater Level Play
Senior Military Education
	Data flexibility for changing force structure
	Distro to Students to at sea or in resident phase of Army
	Enhance NBC play
	Enhance space play
	Factions for Peacekeeping Institute
	Greater distributive play
	Rapid force and scene generation

	Remarks distro to few sites
	SAFOR
	Virtual white boards in GCCS
Doctrine Development	
	Ability to allow any model to use any sensor to gather raw intelligence through Joint Operations Information Simulation
	C2W Gaming
	Common scenario generator to interface to virtual or live
	TENA (T&E network architecture)
	TENA and VTTR pull test ranges and facilities together
	VTTR (Virtual Test and Training Range)

Individual Use Case Index

This enclosure shows the names and the codes of the individual use cases that comprise the consolidated use cases.

Code	Provider Organization
A	Army
AC	ACOM
C	CINC Training Conference
CS	STRATCOM
CX	SPACECOM
D	DIA
EC	EUCOM
F	Air Force
J	Joint
M	Marines
N	Navy
ND	National Defense University
W	Army (WARSIMS)

Individual Use Case Index

Provider Organization	Individual Use Case Name	Code	Consolidated Use Case
Army	Mission Rehearsal CPX/JTX	A-1	1. CINC/JTF/Component Training
Army	CPX/JTX EUCOM	A-10	1. CINC/JTF/Component Training
Army	CPX/JTX	A-2	1. CINC/JTF/Component Training
Army	Institutional Training CPX/JTX	A-3	1. CINC/JTF/Component Training
Army	Training CPX/JTX	A-6	1. CINC/JTF/Component Training
ACOM	ACTD - New Systems	AC-1	1. CINC/JTF/Component Training
ACOM	CINC Staff Training	AC-3	1. CINC/JTF/Component Training
ACOM	JTF	AC-4	1. CINC/JTF/Component Training
ACOM	NATO/PIP	AC-5	1. CINC/JTF/Component Training
ACOM	JTF Mission Rehearsal	AC-6	1. CINC/JTF/Component Training
ACOM	Tier 2 Training	AC-7	1. CINC/JTF/Component Training
Training Conference	JTF/HQ-level Training	C-1	1. CINC/JTF/Component Training
Training Conference	CINC Staff Training Event	C-2	1. CINC/JTF/Component Training
STRATCOM	STRATCOM Global Guardian Exercises	CS-1JT	1. CINC/JTF/Component Training
SPACECOM	Joint Exercise	CX-1	1. CINC/JTF/Component Training
SPACECOM	Unified Endeavor	CX-1a	1. CINC/JTF/Component Training
SPACECOM	Postive Force	CX-2	1. CINC/JTF/Component Training
SPACECOM	Global Guardian Exercise	CX-3	1. CINC/JTF/Component Training
SPACECOM	Support to MOOTW	CX-6	1. CINC/JTF/Component Training
DIA	UFL Exercise	D-1	1. CINC/JTF/Component Training
NRO	Collection Manager Training	D-2	1. CINC/JTF/Component Training
ECCS-AS	Crisis Response	EC-1	1. CINC/JTF/Component Training
ECJ-35	Weapons of Mass Destruction Exercise	EC-2	1. CINC/JTF/Component Training
ECJ-35	Humanitarian Assistance Training	EC-3	1. CINC/JTF/Component Training
ECCS-AS	Anti-Terrorism	EC-4	1. CINC/JTF/Component Training
WPC	JFACC Staff (AOC)	F-1	1. CINC/JTF/Component Training
WPC	JTF Staff Training	F-4	1. CINC/JTF/Component Training
CADRE/WG	Prairie Warrior	F-4a	1. CINC/JTF/Component Training
WPC	Wing Operating Center	F-8	1. CINC/JTF/Component Training
JC2WC	C2W/IW Operational Information Through Simulation	J-1	1. CINC/JTF/Component Training
JC2WC	C2W/IW Training	J-2	1. CINC/JTF/Component Training
2MARDIV G3	Korea/MRC	M-1	1. CINC/JTF/Component Training
FCTCPAC	CJTF Naval Training MRC plus Outside Theater	N-5	1. CINC/JTF/Component Training
TTGL Code 50	Maritime Joint Force Staffs Training	N-7	1. CINC/JTF/Component Training
DIA	Intel Process Training-Collection	D-3	2. Service/Agency Level Training
DIA	Intel-Specified Skill Training (AIS/ACE)	D-4	2. Service/Agency Level Training
AFAMS	AOC Cell Training	F-2	2. Service/Agency Level Training
Space Warfare Center	Integrated Tactical Warning System	F-7	2. Service/Agency Level Training
MARFORLANT	Engineering Infrastructure	M-12	2. Service/Agency Level Training
MC	Mission Rehearsal MEUSOC Staff	M-3	2. Service/Agency Level Training
MC MAGTF	Phase 3	M-4	2. Service/Agency Level Training

Provider Organization	Individual Use Case Name	Code	Consolidated Use Case
Amphibious Warfare School	Tempest Tiapan	M-4a	2. Service/Agency Level Training
MC Command and Staff College	Open Access	M-4b	2. Service/Agency Level Training
MC M&S Mgt Office	1 MEF (UN Withdrawal - Somalia)	M-5	2. Service/Agency Level Training
MC M&S Office	Live Instrumented Range Interface	M-6	2. Service/Agency Level Training
FCTCPAC	Individual Unit (ATG)	N-1	2. Service/Agency Level Training
TTGL Code 50	Warfare Commanders Training	N-3	2. Service/Agency Level Training
Army (WARSIM)	CPX/JTX	W1	2. Service/Agency Level Training
Army (WARSIM)	Mission Rehearsal CPX/JTX	W3	2. Service/Agency Level Training
Army (WARSIM)	Training Seminar	W4	2. Service/Agency Level Training
Army (WARSIM)	Institutional Training CPX/JTX	W5	2. Service/Agency Level Training
Army (WARSIM)	Institutional Training CPX/JTX	W6	2. Service/Agency Level Training
ACOM	Functional/Con Plan	AC-2	3. Planning and Analysis
STRATCOM	STRATCOM Global Guardian Exercises	CS-1A	3. Planning and Analysis
STRATCOM	Theater Nuclear Support	CS-2	3. Planning and Analysis
CIO/RAD	Course of Action Analysis	D-11	3. Planning and Analysis
NRO	Analysis of Collection Systems	D-12	3. Planning and Analysis
DIA	Target Analysis	D-13	3. Planning and Analysis
MC	Maritime Pre-position Force Operations	M-7	3. Planning and Analysis
MC MAGTF Staff Planning	Breaching Study	M-9	3. Planning and Analysis
AFAMS	MSN Rehearsal SG/FT	F-5	4. Crew Team Mission Rehearsal
MC G3 Training	Mission Rehearsal Operating Unit	M-2	4. Crew Team Mission Rehearsal
Army	Training Seminar	A-4	5. Professional Military Education
Army	Training Seminar	A-5	5. Professional Military Education
Army	Training Seminar	A-7	5. Professional Military Education
Army	Institutional Training	A-8	5. Professional Military Education
Army	Training Seminar	A-9	5. Professional Military Education
SPACECOM	C2IW	CX-4	5. Professional Military Education
SPACECOM	Deliberate Exercise Planning	CX-5	5. Professional Military Education
DIA	Joint Intel Corps	D-7	5. Professional Military Education
CADRE/WG	Theater (Joint Warrior)	F-6	5. Professional Military Education
CADRE/WG	Tactical (EDU) Atlantis	F-9	5. Professional Military Education
MC MSTP	Citadel Crunch	M-10	5. Professional Military Education
MC MAGTF Staff Training	Seminar at Marine War College	M-11	5. Professional Military Education
MC	First Strike	M-2a	5. Professional Military Education
Army (WARSIM)	Training Seminar	W2	5. Professional Military Education
Army CSL, Carlisle	Strategic Crisis Planning Exercise	A-11	6. Senior Military Education
CADRE	Strategic	F-3	6. Senior Military Education
NDU	Strategic National Policy	ND1	6. Senior Military Education
NDU	JLASS	ND2	6. Senior Military Education
STRATCOM	Global Guardian Exercise	CS-1D	7. Doctrine Development
SPACECOM	Doctrine	CX-7	7. Doctrine Development
JC2W/OTS	C2w Doctrine/TTP Dev & Eval	J-3	7. Doctrine Development

Provider Organization	Individual Use Case Name	Code	Consolidated Use Case
MC M&S Office	Doctrine Evaluation	M-8	7. Doctrine Development
NDC N51	TD&E	N-10	7. Doctrine Development
NDC N51	Naval Doctrine Dev-TMD	N-11	7. Doctrine Development
NDC N51	OT&E	N-12	7. Doctrine Development
NDC N51	RDT&E	N-13	7. Doctrine Development
NDC N51	TD&E-TMD	N-9	7. Doctrine Development

Requirements Traceability and Cross Reference Matrix

This enclosure is a consolidated list of requirements in three categories: pre-existing, common, and use case unique. Each requirement is cross-referenced to document the applicable text by paragraph number. Due to publication time constraints, data on traceability to the source of requirements will be published as an addendum.

JSIMS FRD Traceability and Cross-Reference Matrix
Pre-Existing Requirements

		FRD Reference	Most Descriptive	JV 2010	JSIMS MNS	JSIMS ORD	JSIMS TRD	Joint Training Plans	UJTL	Use Cases
1.1	**TRANSPARENCY AND REALISM**	Sec II B.1.a				4a2e				
1.1.1	Practice Std Procedures	Sec II B.1.a				4a2e				
1.1.2	Complete Joint Ops Environment	Sec II B.1.a			2c1	4a1	3.1.2.1			
1.1.3	Scenarios Constructed from Real World Data	Sec II B.1.a					3.1.2.1			
1.1.4	Train Using Real World C4I Systems	Sec II B.1.a			2c4	4a2e	3.1.1.3			
1.1.5	Train from Real World Duty Location	Sec II B.1.a			2c4	4a2b	3.1.2.3.1			
1.1.6	Link CAX, FTX, & Sim Trng Environments	Sec II B.1.a			2c6	4a				
1.1.7	Incorporate Natural, Social, Political, & Economic Influences	Sec II B.1.a								
1.1.8	Reduce Visible Overhead Support for Training	Sec II B.1.a								
1.2	**COMPOSABILITY AND FLEXIBILITY**	Sec II B.1.b				4a2a	3.1			
1.2.1	Planning and Scheduling Tools	Sec II B.1.b				4a2f	3.1.1			
1.2.1.1	Access, download & manipulate JEMP data	Sec II B.1.b					3.1.1.2			
1.2.1.2	Correlate JEMP Component Information	Sec II B.1.b					3.1.1.2			
1.2.2	Scenario Preparation Tools	Sec II B.1.b				4a2f	3.1.1.1			
1.2.2.1	Interface with Command Planning Systems	Sec II B.1.b				4a2g				
1.2.2.2	Automate Identification of Environmental Conditions	Sec II B.1.b					3.1.1.3			
1.2.2.3	Customize Unit Representations on Site	Sec II B.1.b					3.1.1.1			
1.2.2.4	Scale Opposing Forces	Sec II B.1.b					3.1.2.2.1			
1.2.2.5	Access Intelligence Networks and Databases	Sec II B.1.b					3.1.2.5			
1.2.3	Database Tools	Sec II B.1.b				4a2h	3.1.1.3			
1.2.3.1	Synthesize Generic and Real-Displaced Data	Sec II B.1.b					3.1.2.5			
1.2.3.2	Download Data from C2, Planning, Other Simulations	Sec II B.1.b								
1.2.3.3	Develop, Install, & Test New DBs within 96Hrs	Sec II B.1.b								
1.2.3.4	Test Modifications to Approved Databases	Sec II B.1.b					3.1.1.3			
1.2.4	Communication & Network Planning Tools	Sec II B.1.b					3.1.1.4			
1.2.4.1	Automate Composable Comm Architectures	Sec II B.1.b					3.1.1.3			
1.2.4.2	Populate C4I Databases	Sec II B.1.b					3.1.1.3			
1.2.4.3	Test Integrity of C4I Systems	Sec II B.1.b					3.1.1.3			
1.2.5	AAR Tools (See 2.1.2)	Sec II B.1.b				4a2r	3.1.2.7			
1.2.6	Technical Control	Sec II B.1.b					3.1.2.4			
1.2.6.1	Support Test of Systems Configuration	Sec II B.1.b					3.1.2.4			
1.2.6.2	Enable mod of Environ, Obj, & C4I Databases	Sec II B.1.b			2c7	4a2p	3.1.2.5			
1.2.7	Exercise Control Tools	Sec II B.1.b				4a2p	3.1.2.5			
1.2.7.1	Populate Environ DBs in Real-Time with Observed Data	Sec II B.1.b					3.1.2.5			
1.2.7.2	Display Status of Simulated Networks	Sec II B.1.b					3.1.2.4.1			
1.2.7.3	Manage up to 54 Simultaneous Simulations	Sec II B.1.b								
1.2.7.4	Capability to Select 2D or 3D	Sec II B.1.b					3.1.2.5			
1.2.7.5	Provide User-defined, Rule-based On-line Query	Sec II B.1.b					3.1.2.5			
1.2.7.6	Capability to Query Status of Any Object	Sec II B.1.b					3.1.2.5			
1.2.7.7	Capability to Override Any Game Command	Sec II B.1.b								
1.2.7.8	Capability to Modify AAR Data Collection at Any Time	Sec II B.1.b					3.1.2.7			
1.2.8	Role Player/Controller GUI	Sec II B.1.b			2c7	4a2l	3.1.2.6			
1.2.8.1	Capability to Select Automated or Manual Control of Units	Sec II B.1.b				4a2l	3.1.2.2.2			
1.2.8.2	Capability to Direct JSIMS Support Functions	Sec II B.1.b								
1.2.8.3	Capability to Select 2D or 3D at Any Point in the Battlespace	Sec II B.1.b					3.1.2.5			

JSIMS FRD Traceability and Cross-Reference Matrix
Pre-Existing Requirements

		FRD Reference	Most Descriptive	JV 2010	JSIMS MNS	JSIMS ORD	JSIMS TRD	Joint Training Plans	UJTL	Use Cases
1.2.8.4	Provide Rule-based On-line Query	Sec II B.1.b								
1.3	**SCALABILITY**	Sec II B.1.c			2c5	4a2l	3.1.2.2.1			
1.3.1	Variable Level of Unit Representation	Sec II B.1.c			2b5	4a2n	3.1.2.2.1			
1.3.2	Vary Number and Size of Units Played	Sec II B.1.c				4a2n	3.1.2.2.1			
1.3.3	Conduct Multi-Echelon Training	Sec II B.1.c				4a2n	3.1.2.2.1			
1.4	**SEMI-AUTOMATED FORCES**	Sec II B.1.d			2c7	4a2i	3.1.2.1.4			
1.4.1	Automate Control of Simulated Forces	Sec II B.1.d				4a2p	3.1.2.1.4			
1.4.2	Automate Behavioral Characteristics of SAFOR	Sec II B.1.d				4a2j	3.1.2.1.4			
1.4.3	Automate Soc, Econ, & Pol affects on SAFOR	Sec II B.1.d					3.1.2.1.4			
1.5	**EVOLUTION/ADAPTABILITY**	Sec II B.1.e								
1.5.1	Keep Pace With Evolving Trng & Ed Requirements	Sec II B.1.e				1	3.2.3.2			
1.5.2	Keep Pace With Emerging Concepts, Tactics, Doctrine	Sec II B.1.e				4a2f				
1.5.3	Capitalize on Hardware/Software Advancements	Sec II B.1.e				2a	3.2			
1.5.4	Single POC for Configuration Control	Sec II B.1.e								
1.6	**FUTURE REQUIREMENTS**	Sec II C.2								
1.6.1	Model the Struggle for Information Superiority	Sec II C.2.a		3						
1.6.1.1	Simulation of RTSA	Sec II C.2.a		3						
1.6.1.2	Modeling Information Systems Vulnerabilities	Sec II C.2.a		3						
1.6.1.3	Simulation of Military Ops in Info Warfare Environment	Sec II C.2.a		3						
1.6.2	Requirements for Precision Engagement	Sec II C.2.b		4						
1.6.2.1	Model Flatter, Faster Target Acquisition & Fire Support	Sec II C.2.b		4						
1.6.2.2	Simulate Direct Shooter-Sensor	Sec II C.2.b		4						
1.6.2.3	Adjusting Values for Changes in Tgting, Lethality, Tempo, Etc.	Sec II C.2.b		4						
1.6.2.4	Model Attack on Hard Tgts with Non-explosive Warheads	Sec II C.2.b		4						
1.6.2.5	Model Effects of Less than Lethal Munitions	Sec II C.2.b		3						
1.6.3	Provide for Full Dimensional Protection	Sec II C.2.c		4						
1.6.3.1	Model Theater Ballistic and Cruise Msl Defense Capabilities	Sec II C.2.c		4						
1.6.3.2	Simulate Remote IFF and Engagement	Sec II C.2.c		4						
1.6.3.3	Simulate Stealth Improvements	Sec II C.2.c		3						
1.6.3.4	Model Protection Against WMD	Sec II C.2.c		4						
1.6.3.5	Model Anti-satellite and Satellite Defense Capabilities	Sec II C.2.c		4						
1.6.3.6	Simulate Improved Use of Deception & Decoys	Sec II C.2.c		3						
1.6.4	Provide for Dominant Maneuver	Sec II C.2.d		4						
1.6.5	Provide Focused Logistics	Sec II C.2.e		4						
1.6.5.1	Model Effects of Focused Logistics on Ops Tempo	Sec II C.2.e		4						
1.6.5.2	Model Effects of Precision Operations on Logistics Support	Sec II C.2.e		4						
1.6.5.3	Model Reduce Threat To Direct Attack & Increased IW Threat	Sec II C.2.e		4						
1.6.5.4	Model Reduction in Reliance on Shore-based Logistics	Sec II C.2.e		4						

Encl. 13

JSIMS FRD Traceability and Cross-Reference Matrix
Common Requirements

		FRD Reference	Most Descriptive	JV 2010	JSIMS MSNS	JSIMS ORD	JSIMS TRD	Joint Training Plans	UJTL	Use Cases
2.1	**UJTL-DERIVED REQUIREMENT**	Sec II B.2.a				1				
2.1.1	Simulation that Supports UJTL, JMETL, & TTL Based Trng	Sec II B.2.a								
2.1.2	Complete Model of UJTL Environmental Characteristics	Sec II B.2.a								
2.1.3	Incorporation of UJTL Based Measures for AAR	Sec II B.2.a								
2.2	**EXERCISE/EVENT SCENARIO DEVELOPMENT**	Sec II B.2.b								
2.2.1	Capability to Create Scenarios up to Global Scale	Sec II B.2.b				1	3.1.12.1.1			
2.2.2	Support Warfare Domains -- MOOTW to Global Ops	Sec II B.2.b				1	3.1.12.1.1			
2.3	**PHASES OF OPERATIONS**	Sec II B.2.c					3.1.12.1.1			
2.3.1	Capability to Support Five Phases of Operations	Sec II B.2.c					3.1.12.1.1			
2.3.1.1	Mobilize	Sec II B.2.c					3.1.12.1.1			
2.3.1.2	Deploy	Sec II B.2.c					3.1.12.1.1			
2.3.1.3	Employ	Sec II B.2.c					3.1.12.1.1			
2.3.1.4	Sustain	Sec II B.2.c					3.1.12.1.1			
2.3.1.5	Re-Deploy	Sec II B.2.c					3.1.12.1.1			
2.3.2	Move Seamlessly from one Phase to the Next	Sec II B.2.c				3i				
2.3.3	Capability to Train in Multiple Phases Simultaneously	Sec II B.2.c								
2.4	**THEATER**	Sec II B.2.d								
2.4.1	Create Medium Size for Regional CINCs	Sec II B.2.d								
2.4.2	Create Massive for Functional CINCs	Sec II B.2.d								
2.4.3	Create Global Size for Functional CINCs	Sec II B.2.d								
2.5	**NUMBER OF SIDES**	Sec II B.2.e				4a2k				
2.5.1	Up to 30 Multiple Sides and Factions	Sec II B.2.e					3.1.2.1.2			
2.5.2	Over 30 Multiple Sides and Factions	Sec II B.2.e								
2.6	**USER OPERATING LOCATIONS**	Sec II B.2.f			2c4	4a2b	3.1.2.3.1			
2.6.1	Capability to Train at One Location	Sec II B.2.f					3.1.2.3.1			
2.6.2	Capability to Simultaneously Train at Many Locations	Sec II B.2.f					3.1.2.3.1			
2.7	**VISUALIZATION**	Sec II B.2.g								
2.7.1	2D View of Battlespace	Sec II B.2.g								
2.7.2	3D View of Battlespace	Sec II B.2.g								
2.8	**C4I INTERFACES REQUIREMENTS**	Sec II B.2.h			2c3	4a2g	3.1.2.1.6			
2.8.1	Interface With Simulated Units via their C4I to Include Voice	Sec II B.2.h					3.1.2.3.2			
2.8.2	Capability to Stimulate Sensor Displays	Sec II B.2.h					3.1.2.1.6			
2.8.3	Capability to Degrade C4I Reliability/Performance	Sec II B.2.h					3.1.2.1.5			
2.9	**SYNTHETIC ENVIRONMENT**	Sec II B.2.i			2c1	1				
2.9.1	Use Historical, Climatic Extremes, Observed, & Forecast Data	Sec II B.2.i								
2.9.2	Dynamic Environment that Changes in Response to Mil Ops	Sec II B.2.i								
2.9.3	Interactively Alter/Freeze Environmental Attributes	Sec II B.2.i								
2.9.4	Create Generic, Real, & Real-displaced Environments	Sec II B.2.i				4a2d				
2.10.	**SECURITY REQUIREMENTS**	Sec II B.2.j								
2.10.1	Operate at SECRET Classification Levels	Sec II B.2.j					3.2.4			
2.10.2	Operate at other than SECRET Classification Level	Sec II B.2.j					3.2.4			
2.10.3	Simultaneously Operate at Different Classification Levels	Sec II B.2.j								
2.10.4	Selectively Control Access to Ex Data/Products	Sec II B.2.j								
2.11	**TIME MANAGEMENT**	Sec II B.2.k				4a2o				
2.11.1	Vary Game Speed -- Full Stop to Faster Than Real Time	Sec II B.2.k								

JSIMS FRD Traceability and Cross-Reference Matrix
Common Requirements

		FRD Reference	Most Descriptive	JV 2010	JSIMS MSNS	JSIMS ORD	JSIMS TRD	Joint Training Plans	UJTL	Use Cases
2.11.2	Step Back to a Previous Time	Sec II B.2.k								
2.11.3	Jump Forward in Time while Preserving Simulation Effects	Sec II B.2.k								
2.12	SYSTEMS OPERATIONS									
2.12.1	Operate with Organic Operators	Sec II B.2.l								
2.12.2	Operate with External Support	Sec II B.2.l								
2.12.3	Reduce Control Staff/System Operator Trng Time	Sec II B.2.l				4a2b	3.2.6.2			
2.13	AAR SUPPORT REQUIREMENTS	Sec II B.2.m				4a2r				
2.13.1	Comprehensive AAR Function	Sec II B.2.m					3.1.2.7			
2.13.2	Planning Phase Requirements	Sec II B.2.m					3.1.2.7			
2.13.3	Preparation Phase Requirements	Sec II B.2.m					3.1.2.7			
2.13.4	Execution Phase Requirements	Sec II B.2.m					3.1.2.7			
2.13.5	Post-exercise & Evaluation Phase requirements	Sec II B.2.m					3.1.3			
2.13.6	Provide Information on Its Own Performance	Sec II B.2.m				4a2c				
2.13.7	Sufficiently Automated to Minimize Required Level of Support	Sec II B.2.m								

JSIMS FRD Traceability and Cross-Reference Matrix
Unique Requirements

		FRD Reference	Most Descriptive	JV 2010	JSIMS MSNS	JSIMS ORD	JSIMS TRD	Joint Training Plans	UJTL	Use Cases
3.1	**CINC/JTF/JTF COMPONENT/AGENCY TRNG**	Sec II C.3.a								
3.1.1	Continuos Operations for up to 10 Days	Sec II C.3.a								
3.1.2	Capability to Represent OPFOR C4I Systems	Sec II C.3.a								
3.1.3	Represent Behavioral Characteristics of OPFOR Units	Sec II C.3.a								
3.1.4	Represent Forces Down to Bn, Sq, & Ship	Sec II C.3.a								
3.1.5	Focus on SN, ST, & OP Level Trng Obj	Sec II C.3.a								
3.2	**SERVICE/AGENCY TRAINING**	Sec II C.3.b								
3.2.1	Operate 12 Hr/Day in Start-Stop Mode	Sec II C.3.b								
3.2.2	Represent Forces Down to Co, Crew/Team, & Aircraft	Sec II C.3.b								
3.2.3	Focus on OP & TA Level Training Obj	Sec II C.3.b								
3.2.4	Increase in Behavioral Complexity	Sec II C.3.b								
3.2.5	Higher Level of Resolution	Sec II C.3.b								
3.3	**PLANNING AND ANALYSIS**	Sec II C.3.c								
3.3.1	Higher Fidelity & Levels of Resolution	Sec II C.3.c								
3.3.2	High Degree of Automation Due to Small Operating Staffs	Sec II C.3.c								
3.3.3	Capability to Interface With Real World Planning Systems	Sec II C.3.c								
3.3.4	Capability to Rapidly Run COA Excursions	Sec II C.3.c								
3.3.5	Capability to Define MOE	Sec II C.3.c								
3.3.6	Capability to Automate Data Collection	Sec II C.3.c								
3.3.7	Capability to Support Post Processing & Analysis	Sec II C.3.c								
3.3.8	Higher Degree of Behavioral Complexity	Sec II C.3.c								
3.4	**CREW/TEAM REHEARSAL**	Sec II C.3.d								
3.4.1	Very High Degree of Fidelity and Resolution	Sec II C.3.d								
3.4.2	Capability to Quickly Provide Virtual Environment	Sec II C.3.d								
3.5	**PROFESSIONAL MILITARY EDUCATION**	Sec II C.3.e								
3.5.1	Run up to 54 Simultaneous/Distinct Scenarios	Sec II C.3.e								
3.5.2	Capability to Emulate C4I Systems	Sec II C.3.e								
3.6	**SENIOR OFFICER EDUCATION**	Sec II C.3.f								
3.6.1	Focus on NCA & SN Level Training Obj	Sec II C.3.f								
3.6.2	Support Multiple Theaters & Msn Simultaneously	Sec II C.3.f								
3.7	**DOCTRINE DEVELOPMENT**	Sec II C.3.g								
3.7.1	Highest Degree of Behavioral Complexity	Sec II C.3.g								
3.7.2	Capability to Support Operational Tests	Sec II C.3.g								
3.7.3	Capability to Support Tactics Development	Sec II C.3.g								

JWFC Baseline Models Capabilities Matrix

This document defines JSIMS baseline capabilities IOC and FOC. It assumes that JSIMS will, at IOC, support accomplishment of all training objectives that are currently supported using legacy simulations.

Three legacy simulations are considered in establishing this baseline: the Joint Training Confederation (JTC), the Joint Conflict and Tactical Simulation (JCATS), and the Joint Theater Level Simulation (JTLS). The Chair of the JTC Requirements Panel and the Program Managers for JCATS and JTLS evaluated the capability of their respective simulations to support accomplishment of UJTL, V2.1-defined tasks in an exercise environment. The results, expressed in terms of implementation priority for IOC and FOC, are presented in the accompanying tables. The tables are arranged in descending order, beginning at the Strategic National Level (e.g. SN, ST, OP, and TA).

The CINCs' Joint Training Plans (JTPs) identify three methods of accomplishing joint training objectives: (1) academics, (2) Field Training Exercises (FTXs), and (3) Computer Assisted Exercises (CAXs). Not all the enclosed tasks are appropriate candidates for CAX-related training, and the selection of the "best" training method for each task is not always clear cut. Two categories of tasks are considered in column 1, "CAT":

"I" indicates that the accomplishment of the training objective requires some degree of functional support from JSIMS.

"II" indicates that the task may not be an appropriate training objective for a CAX. This does not preclude using JSIMS to gain insight that supports task accomplishment. For example, the lessons learned from a CAX can be used to refine Joint Mission Essential Tasks without the need to explicitly "model" the UJTL task development process in JSIMS.

As noted, several tasks have been linked by CINCs in their JTPs with CAXs. These tasks are flagged with a "Y" in column 2, "CINC".

The next two columns, "STATUS" and "MODEL", describe the degree to which training on a specified task is supported by JTC, JCAT, and/or JTLS. The current level of support is assessed to either red, yellow, or green in the "STATUS" column. The associated model(s) are indicated by number in the "MODEL" column. Only the most capable model(s) is/are shown. The following codes are used to describe the level of support provided and the model(s) that provide it:

"R" Indicates that functionality is not implemented.

"Y" Indicates that functionality is partially implemented.

"G" Indicates that functionality is currently modeled or will be implemented by FY 97.

"1" = JTC   "2"= JLTS   "3" JCATS

Finally, two factors were considered in assigning each task an implementation priority at both IOC and FOC. They are: (1) whether or not the task has been identified by one or more CINCs as a CAX training objective, and (2) the degree to which the task is supported, as described above. Figure 1. illustrates the assignment logic.

CINC	STATUS	IOC PRIORITY	FOC PRIORITY
Y	G	1	1
-	G	1	1
Y	Y	1	1
-	Y	2	1
Y	R	1	1
-	R	3	2

Figure 1. Assignment of Implementation Priority

The assignment process includes a subjective assessment of the degree to which the most capable legacy system(s) support the training objectives. This process, while useful, does not provide a clear picture of the level of support that is achievable with legacy systems in CAXs today. In most cases, it will require more than one of these models to best meet all the users needs.

The operational environment is changing and this approach does not address the full set of operational tasks that are surfacing in user communities. Furthermore, when each task is redefined in terms of the functions that JSIMS must perform in order to support its accomplishment, there will be a number of JSIMS functions that support accomplishment of multiple operational tasks. Functional priorities need to address not only the value of the supported objective but the utility of the JSIMS function across all other supported tasks as well. Trade-offs between assigned priority and available resources must be made this level, to achieve maximum capability at IOC

The scope of this document is limited to identifying candidate sets of UJTL-derived training objectives for IOC and FOC. It does not define or assign priority to functional requirements, and it does not address other aspects of user requirements.

STRATEGIC NATIONAL (SN)

SN 1 DEPLOYMENT

	TASK	CAT	CINC	STATUS	MODEL	IOC	FOC
SN 1.1	**Determine Transportation Infrastructure and Resources**						
SN 1.1.1	Determine Available Transportation	I		Y	2	2	1
SN 1.1.2	Coordinate and Match Transportation resources and Requirements	I		Y	2	2	1
SN 1.1.3	Determine Possible Closure Times	I		Y	1	2	1
SN 1.1.4	Provide for En Route Support and Clearances	I		R	-	3	2
SN 1.1.5	Determine Impact of Threat, Climate, and Geography	I		R	-	3	2
SN 1.2	**Conduct Deployment and Redeployment**		Y				
SN 1.2.1	Integrate Deployment Systems	I		G	2	1	1
SN 1.2.2	Provide Forces and Mobility Assets	I		Y	2	1	1
SN 1.2.3	Provide Terminal Operations	I		G	3	1	1
SN 1.2.4	Provide Movement to POE and Port Support Services	I		Y	2-3	1	1
SN 1.2.5	Move Forces from POE to POD	I		Y	3	1	1
SN 1.2.6	Backhaul Personnel and Equipment from Theater	I		Y	3	1	1
SN 1.2.7	Coordinate Global Strategic Refueling	I		R	-	1	1

STRATEGIC NATIONAL (SN)

SN 2 INTELLIGENCE

	TASK	CAT	CINC	STATUS	MODEL	IOC	FOC
SN 2.1	**Plan and Direct Strategic Intelligence Activities**						
SN 2.1.1	Develop Strategic Intelligence and Targeting Policy	I, II		Y	3	2	1
SN 2.1.2	Determine Strategic Intelligence Issues and Requirements	II		Y	3	2	1
SN 2.1.3	Set Intelligence Priorities for Strategic Planning	I		R	-	3	2
SN 2.1.4	Distribute Intelligence Resources and Requirements	I		Y	1	2	1
SN 2.2	**Collect Strategic Information**		Y				
SN 2.2.1	Collect Information on strategic Situation Worldwide	I		R	-	1	1
SN 2.2.2	Collect Information on Strategic Targets	I		R	-	1	1
SN 2.2.3	Support Combatant Command Intelligence Needs	I		Y	1	1	1
SN 2.2.4	Collect Information on Meteorology, Oceanography,				-		
	Topography/Mapping, Charting, and Geodesy	I		Y	1-2-3	1	1
SN 2.3	**Provide Baseline Intelligence Assessment and Reassessment**		Y		--		
SN 2.3.1	Assess Global and Regional Issues and Threats	I		R	-	1	1
SN 2.3.2	Assess Strategic Vulnerabilities	I		R	-	1	1
SN 2.3.3	Analyze Areas of Interest Regionally and Worldwide	I, II		R	-	1	1
SN 2.3.4	Integrate All-Source Strategic Intelligence	I		R	-	1	1
SN 2.3.5	Develop National Strategic Indications and Warning of Threat Worldwide	I		R	-	1	1
SN 2.4	**Prepare and Disseminate National Strategic Intelligence**						
	Estimates, Assessments, and Reports	I		R		3	2

STRATEGIC NATIONAL (SN)

SN 3 EMPLOYMENT

	TASK	CAT	CINC	STATUS	MODEL	IOC	FOC
SN 3.1	**Coordinate Forward Presence of Forces in Theaters**						
SN 3.1.1	Station Forces Forward in Theaters	I		G	2	1	1
SN 3.1.2	Coordinate Periodic and Rotational Deployments, Port Visits and						
	Military Contacts	I		Y	1	2	1
SN 3.1.3	Support Establishment of Access and Storage Agreements	II		R		3	2
SN 3.1.4	Coordinate Multinational Exercises	II		G	2-3	1	1
SN 3.2	**Apply National Strategic Firepower**		Y				
SN 3.2.1	Process Strategic Targets	I		G	2	1	1
SN 3.2.2	Generate and Disperse Strategic Firepower Force	I		G	2	1	1
SN 3.2.3	Manage Strategic Force Readiness Levels	I		Y	2	1	1
SN 3.2.4	Demonstrate National Military Capabilities	I		G	2	1	1
SN 3.2.5	Attack Strategic Targets	I		G	2-3	1	1
SN 3.2.6	Integrate Strategic Firepower	I		G	2-3	1	1
SN 3.3	**Protect Strategic Forces and Means**						
SN 3.3.1	Provide Strategic Air and Space Defense	I		Y	2-3	2	1
SN 3.3.2	Protect Homeland and Strategic Forces and Means	I		Y	2-3	2	1
SN 3.3.3	Coordinate Worldwide Operations Security	I		R		3	2
SN 3.3.4	Coordinate and Conduct Deception in support of Strategy and Plans	I		R		3	2
SN 3.3.5	Assist Civil Defense	I		R		3	2
SN 3.3.6	Provide Security for Strategic Forces and Means	I		G	2	1	1
SN 3.3.7	Provide for Nuclear Surety	I		G	3	1	1
SN 3.3.8	Support Search, Evasion and Recovery, and Escape Requirements	I		G	3	1	1
SN 3.4	**Provide DOD/Government-Wide Support**		Y				
SN 3.4.1	Support DOD and Joint Agencies	I		G	2-3	1	1
SN 3.4.2	Support Other Government Agencies	I		G	3	1	1
SN 3.4.3	Support Evacuation of Noncombatants from Theaters	I		G	1-2-3	1	1
SN 3.4.4	Generate and Launch Space Systems	I	Y	G	1	1	1
SN 3.4.5	Monitor and Maintain On-Orbit Systems	I	Y	G	1	1	1
SN 3.4.6	Provide Space Control	I	Y	Y	1	1	1
SN 3.5	**Support Other Nations or Groups**						
SN 3.5.1	Provide Security Assistance	I		G	2	1	1
SN 3.5.2	Support Nation Assistance	I		R		3	2
SN 3.5.3	Support Peace Operations	I		Y	2-3	2	1
SN 3.5.4	Support Military Civic Actions	I		Y	2	2	1
SN 3.5.5	Provide for Humanitarian Assistance, Disaster Relief, and						
	Humanitarian and Civic Assistance	I		Y	1-2-3	2	1
SN 3.5.6	Provide Civil Affairs Support Policy	I		R			
SN 3.5.7	Provide Psychological Operations Support	I		Y	1-2-3	2	1
SN 3.5.8	Coordinate Information Sharing Arrangements	I		Y	2	2	1

STRATEGIC NATIONAL (SN)

SN 4 SUSTAINABILITY

	TASK	CAT	CINC	STATUS	MODEL	IOC	FOC
SN 4.1	**Acquire and Distribute Personnel**						
SN 4.1.1	Determine Human Resource Requirements	I, II		R	-	3	2
SN 4.1.2	Acquire, Train, Supply, and Transport Personnel	I		Y	2	2	1
SN 4.2	**Provide for Base Support and Service**	II					
SN 4.2.1	Determine National Military Support Infrastructure	I		R	-	3	2
SN 4.2.2	Provide Depot Supply and Maintenance	I		Y	2	2	1
SN 4.2.3	Control National Inventories and Movements	I		Y	2	2	1
SN 4.2.4	Develop CONUS Sustainment Base	I		R	-	3	2
SN 4.2.5	Provide Defensewide Base Operations Support	I		Y	2	2	1
SN 4.2.6	Provide Personnel Management and Moral Support	I		R	-	3	2
SN 4.2.7	Coordinate Defensewide Religious Support	I		R	-	3	2
SN 4.2.8	Provide Defensewide Health services	I		R	-	3	2
SN 4.2.9	Provide management Headquarters	I		R	-	3	2
SN 4.2.10	Coordinate Defensewide legal Support	I		R	-	3	2
SN 4.2.11	Establish Prisoner Control Policy	I, II		R	-	3	2
SN 4.2.12	Acquire Host-Nation Support (HNS)	I		Y	2	2	1
SN 4.3	**Reconstitute National Forces and Means**	I		R	-	3	2
SN 4.4	**Set Sustainment Priorities**	I, II		R	-	3	2

STRATEGIC NATIONAL (SN)

SN 5 DIRECTION INTEGRATION

	TASK	CAT	CINC	STATUS	MODEL	IOC	FOC
SN 5.1	**Operate and Manage Global Strategic Communications and**						
	Information Systems		Y				
SN 5.1.1	Communicate Strategic Decisions/Information	I		Y	3	1	1
SN 5.1.2	Manage National Military C4 Systems Worldwide for Communicating						
	Strategic Information	I		R	-	1	1
SN 5.1.3	Maintain Global Strategic Military Information and Force Status	I		R	-	1	1
SN 5.1.4	Monitor Worldwide Strategic Situation	I		R	-	1	1
SN 5.1.5	Provide Public Affairs (PA) Worldwide	I		R	-	1	1
SN 5.2	**Reassess Worldwide and Regional Strategic Environment**						
SN 5.2.1	Conduct Joint Military Net Assessments	I, II		R	-	3	2
SN 5.2.2	Conduct National Military Strategy Review	II		R	-	3	2
SN 5.2.3	Review Operation Plans	II		G	2	1	1
SN 5.2.4	Decide on Need for Military Action or Change	I, II		Y	2	2	1
SN 5.3	**Determine Revised National Military Strategic Direction**						
SN 5.3.1	Issue Strategic Planning Guidance	I		R	-	3	2
SN 5.3.2	Develop and Analyze Multinational and national Military Strategy Options	I, II		Y	2	2	1
SN 5.3.3	Select or Modify Multinational and National Military Strategy,						
	Plans, and other Strategic Actions	I, II		Y	2	2	1
SN 5.3.4	Review Strategic Options and Recommendations with NCA and						
	Other Officials and Adjust	I, II		R	-	3	2
SN 5.3.5	Set Worldwide Priorities and Allocate Resources	I		Y	2	2	1
SN 5.4	**Provide Strategic Direction for Forces Worldwide**						
SN 5.4.1	Prepare and Issue Strategic Estimates, Priorities, and Joint Operation						
	Plans	I		R	-	3	2
SN 5.4.2	Coordinate Support for Unified, Joint, and Multinational Operations	I		R	-	3	2
SN 5.4.3	Synchronize and Manage Global Operations and Resources	I		R	-	3	2
SN 5.4.4	Prepare and Issue CJCS Orders	I		G	1-2-3	1	1
SN 5.5	**Coordinate Worldwide C2w Support**			R	-	3	2

STRATEGIC NATIONAL (SN)

SN 6 MOBILIZATION

	TASK	CAT	CINC	STATUS	MODEL	IOC	FOC
SN 6.1	**Prepare for Mobilization**						
SN 6.1.1	Develop and Evaluate Installation Plans, Policies, Procedures, and Systems for Mobilization	I, II		R	-	3	2
SN 6.1.2	Develop and Exercise RC Unit and Individual Mobilization Plans	II		Y	2	2	1
SN 6.1.3	Participate in Joint Operation Planning to Support Mobilization	I, II		R	-	3	2
SN 6.1.4	Increase Readiness of Key Mobilization Personnel	I		G	3	1	1
SN 6.1.5	Maintain Current Operational Readiness Status of Units	I		Y	2-3	2	1
SN 6.2	**Alert Forces for Mobilization**						
SN 6.2.1	Alert Units and Individuals of Pending Mobilization	I		R	-	3	2
SN 6.2.2	Prepare HS and MS/CRC for Reception of Activated Units and Individuals	I		R	-	3	2
SN 6.2.3	Activate Key Personnel	I		R	-	3	2
SN 6.2.4	Conduct Preparatory Administrative, Logistic, Medical, and Readiness Activities	I		R		3	2
SN 6.3	**Mobilize at Home Station**						
SN 6.3.1	Assemble Forces and Report Status	I		Y	2	2	1
SN 6.3.2	Conduct Specified Training	II		R	-	3	2
SN 6.3.3	Requisition NMS Training and Support Requirements	I		R	-	3	2
SN 6.3.4	Transfer HS Property and Prepare for Movement to MS	I		R	-	3	2
SN 6.4	**Move to Mobilization Station**						
SN 6.4.1	Develop Requirements/Movement Plans from HS to MS (or POE)	I, II		R	-	3	2
SN 6.4.2	Provide Transportation ;for Mobilized Units and Individuals	I		Y	2	2	1
SN 6.4.3	Provide Mobilization Movements Control	I		R	-	3	2
SN 6.5	**Prepare Units and Individuals at MS for Deployment**						
SN 6.5.1	Receive and Provide Base and Operations Support for Units and Individuals	I		R	-	3	2
SN 6.5.2	Validate RC Units for Deployment	II		R	-	3	2
SN 6.5.3	Cross-Level and Redistribute Personnel and Equipment	I		R	-	3	2
SN 6.5.4	Train Units and Individuals to Minimum Operationally Ready/POR	II		R	-	3	2
SN 6.5.5	Secure Clearance for Deploying Nonvalidated Units	I		R	-	3	2
SN 6.6	**Mobilize CONUS Sustaining Bases**						
SN 6.6.1	Expand Mobilization Stations	I		Y	2	2	1
SN 6.6.2	Expand Training Base	I		R	-	3	2
SN 6.6.3	Expand Logistic Support	I		Y	2	2	1
SN 6.6.4	Expand Health Service Support	I		R	-	3	2
SN 6.6.5	Expand Transportation Support System	I		Y	2	2	1
SN 6.6.6	Expand Other Support	I		R	-	3	2
SN 6.6.7	Plan and Maintain Industrial Base Preparedness	II		R	-	3	2
SN 6.7	**Provide Command and Control over Mobilized Units and Individuals**	I		R	-	3	2

STRATEGIC NATIONAL (SN)

SN 7 DEVELOPMENT

	TASK	CAT	CINC	STATUS	MODEL	IOC	FOC
SN 7.1	**Formulate Joint and Service Concepts, Doctrine,**						
	and Requirements	II	Y				
SN 7.1.1	Issue Top-down Strategic Guidance	I		G	1-2-3	1	1
SN 7.1.2	Develop Joint and Service Warfighting and Other Concepts	II		G	3	1	1
SN 7.1.3	Determine needs and Solutions	I, II		G	3	1	1
SN 7.1.4	Document Requirements and Solutions	II		G	3	1	1
SN 7.2	**Conduct Research and Development**	II		R	-	3	2
SN 7.3	**Design Units**						
SN 7.3.1	Develop Unit Reference Sheet Organizations	II		Y	2	2	1
SN 7.3.2	Develop Equipment Basis of Issue and Qualitative and Quantitative						
	Personnel Requirements Information	II		Y	2	2	1
SN 7.3.3	Development and Document Unit Organization and Equipment						
	Authorizations	II		Y	2	2	1
SN 7.3.4	Integrate Unit Design	II		Y	2	2	1
SN 7.4	**Size Combat Force**						
SN 7.4.1	Develop Risk Evaluation Force	II		Y	2	2	1
SN 7.4.2	Conduct Objective (constrained) Force Planning	II		G	3	1	1
SN 7.4.3	Determine Force for Program	II		Y	2	2	1
SN 7.5	**Develop Support Force Structure (Below-the-line-force)**						
SN 7.5.1	Determine Global, Theater Support Force Structure, and Strategic	I, II		R	-	3	2
	Mobility Requirements			Y	2	2	1
SN 7.5.2	Match Requirements to available Forces	I		Y	2	2	1
SN 7.5.3	Conduct Trade-Off and Prioritization Analyses	I, II		Y	2	2	1
SN 7.5.4	Integrate Strategic Forces	I		Y	2	2	1
SN 7.6	**Document Unit Authorizations**	II		R	-	3	2
SN 7.7	**Educate and Train the Force**		Y				
SN 7.7.1	Coordinate Joint Mission Essential Task List (JMETL)	II		R	-	1	1
SN 7.7.2	Establish Education and Training Programs and Allocate Resources	II		R	-	1	1
SN 7.7.3	Conduct Professional Education and Training	II		R	-	1	1
SN 7.7.4	Assess Training and Education Effectiveness	II		R	-	1	1
SN 7.8	**Ensure Interoperability**	II		R	-	1	1

STRATEGIC THEATER (ST)

ST 1 DEPLOYMENT

	TASK	CAT	CINC	STATUS	MODEL	IOC	FOC
ST 1.1	**Conduct Intratheater Strategic Deployment**		Y				
ST 1.1.1	Process Movement Requirements	I	Y	Y	1-2	1	1
ST 1.1.2	Provide Reception and Onward Movement Services	I	Y	Y	1-2	1	1
ST 1.1.3	Conduct Intratheater Deployment of forces	I	Y	G	1-2	1	1
ST 1.1.4	Provide Command & Control of Deploying Units	I	Y	G	1-2	1	1
ST 1.1.5	Coordinate Intratheater Refueling	I		G	1-2	1	1
ST 1.2	**Concentrate Forces**	I		G	1-2	1	1
							1
ST 1.3	**Conduct Theater Strategic Maneuver**						
ST 1.3.1	Posture Forces for Strategic Maneuver	I	Y	G	1-2	1	1
ST 1.3.2	Designate Strategic Reserves	I	Y	G	1-2	1	1
ST 1.3.3	Synchronize forcible Entry in Theater of War	I		G	1	1	1
ST 1.3.4	Integrate Direct Action in Theater	I		G	1-2	1	1
ST 1.3.5	Coordinate Show of Force/Demonstration	I		G	1	1	1
ST 1.4	**Enhance Stragetic Mobility**			G	1-2	1	1
ST 1.5	**Conduct Strategic Countermobility**						
ST 1.5.1	Establish Strategic System of Barriers, Obstacles, & Mines	I		G	1-2	1	1
ST 1.5.2	Establish Quarantine, embargo, or Blockade	I		G	1-2	1	1
ST 1.6	**Control or Dominate Strategically significant Areas**						
ST 1.6.1	Control Strategically Significant Land Area	I		G	1-2-3	1	1
ST 1.6.2	Secure Air Superiority in Theater of War	I	Y	G	1-3	1	1
ST 1.6.3	Secure Maritime Superiority in Theater	I	Y	G	1-3	1	1

STRATEGIC THEATER (ST)

ST 2 INTELLIGENCE

	TASK	CAT	CINC	STATUS	MODEL	IOC	FOC
ST 2.1	**Establish Intelligence Requirements**		Y				
ST 2.1.1	Evaluate Prior Intelligence Requirements	I		G	1-3	1	1
ST 2.1.2	ID, Prioritize, and Validate Intel Requirements	I		G	1	1	1
ST 2.1.3	Develop Collection Strategy, Plan, & Requests for Information &						
	Products	I	Y	G	1	1	1
ST 2.2	**Collect Theater Strategic Information**		Y				
ST 2.2.1	Collect Information on Strategic Situation, Geography, Medical Risks,						
	Climate, and Significant Hazards	I	Y	Y	1	1	1
ST 2.2.2	Collect Information on Theater Specific Targets	I		Y	1-2-3	1	1
ST 2.2.3	Provide for Theater Strategic reconnaissance and Surveillance	I		Y	1-2-3	1	1
ST 2.3	**Process and Produce Strategic Information**		Y				
ST 2.3.1	Evaluate Strategic Threat Information	I	Y	Y	1-2-3	1	1
ST 2.3.2	Analyze Theater Area of Interest	I	Y	Y	1-2	1	1
ST 2.3.3	Evaluate Social/Political/Economic/Health Environment	I		R		1	1
ST 2.3.4	Integrate Strategic Intelligence	I	Y	Y	1-2	1	1
ST 2.3.5	Develop Indications and Warning	I	Y	G	1	1	1
ST 2.3.6	Identify Operational Vulnerabilities	I	Y	Y	1-2-3	1	1
ST 2.4	**Prepare & Disseminate Theater Strategic Intelligence Reports**	I	Y	Y	1-2-3	1	1

STRATEGIC THEATER (ST)

ST 3 FIREPOWER

	TASK	CAT	CINC	STATUS	MODEL	IOC	FOC
ST 3.1	**Process Theater Specific Targets**		Y				
ST 3.1.1	Select Theater Strategic Targets	I	Y	G	1	1	1
ST 3.1.2	Assign Joint/Multinational Theater Fireposer	I	Y	G	1	1	1
ST 3.1.3	Conduct Theater Combat Assessment	I		G	1	1	1
ST 3.2	**Attack Theater Strategic Targets**		Y				
ST 3.2.1	Conduct Lethal Attack on Strategic Targets	I	Y	G	1	1	1
ST 3.2.2	Conduct Nonlethal Attack on Strategic Targets	I	Y	G	1	1	1
ST 3.2.2.1	Conduct Theater Psychological Activities	I		Y	1	1	1
ST 3.2.2.2	Conduct Theater Electronic Attack	I		Y	1	1	1
ST 3.2.3	Integrate Theater Strategic Firepower	I	Y	G	1	1	1

STRATEGIC THEATER (ST)

ST 4 SUSTAINABILITY

	TASK	CAT	CINC	STATUS	MODEL	IOC	FOC
ST 4.1	Coordinate the Re;pairing and Maintaining of Equipment		Y	Y	1-2	1	1
ST 4.2	**Coordinate Manning of Forces in Theater**						
ST 4.2.1	Integrate Field Services	I	Y	G	1-2	1	1
ST 4.2.2	Provide Health Services	I	Y	G	1-2	1	1
ST 4.2.3	Reconstitute Theater Forces	I	Y	G	1-2	1	1
ST 4.2.4	Coordinate Training of Units and Personnel	I		R	-	1	1
ST 4.2.5	Coordinate Theater Reception Activities	I	Y	G	1	1	1
ST 4.3	**Distribute Supplies/Services for Theater Campaign and COMMZ**						
ST 4.3.1	Provide Movement Services Within AOR	I	Y	G	1-2	1	1
ST 4.3.2	Provide Supplies & Services for Theater Forces	I	Y	G	1	1	1
ST 4.3.2.1	Allocate all Classes of Supply per Strategic Plan	I		G	1	1	1
ST 4.3.2.2	Build Up Stockage levels for Theater Campaign	I		G	2	1	1
ST 4.3.2.3	Provide Maintenance Service & Parts for Theater Campaign	I		G	1	1	1
ST 4.4	**Maintain Sustainment Bases**						
ST 4.4.1	Determine Number & Location of Sustaining Bases	I	Y	Y	1	1	1
ST 4.4.2	Provide Civil-Military Engineering in Theater	I	Y	G	1-2	1	1
ST 4.4.3	Provide Law Enforcement and Prisoner Control	I		Y	1-3	2	1

STRATEGIC THEATER (ST)

ST 5 COMMAND CONTROL (C2)

	TASK	CAT	CINC	STATUS	MODEL	IOC	FOC
ST 5.1	**Operate & Manage Theater Communications & Information Systems**						
ST 5.1.1	Communicate Strategic & Operational decisions & Information	I	Y	Y	1	1	1
ST 5.1.2	Manage Theater C4 Systems for Communicating Strategic Orders & Information	I		R	-	3	2
ST 5.1.3	Maintain Strategic Information, Data & Force Status	I	Y	G	1-2	1	1
ST 5.1.4	Monitor Worldwide & Theater Strategic Situation	I	Y	G	1-2	1	1
ST 5.1.5	Provide Public Affairs in Theater	I	Y	G	1-2	1	1
ST 5.2	**Assess Theater Strategic Environment**						
ST 5.2.1	Review Current Situation	I		R	-	3	2
ST 5.2.2	Assess national & Multinational Strategy	I		R	-	3	2
ST 5.2.3	Review national Security Considerations	I		R	-	3	2
ST 5.2.4	Review International Security Considerations	I		R	-	3	2
ST 5.2.5	Project Future Theater Campaigns or Strategic Operations	I	Y	G	1-2	1	1
ST 5.3	**Determine Strategic Direction**		Y				
ST 5.3.1	Conduct Strategic Estimate	I		G	1-2	1	1
ST 5.3.2	Develop Theater Strategy	I		G	1-2	1	1
ST 5.3.3	Issue Planning Guidance	I		G	1-2	1	1
ST 5.4	**Provide Strategic Direction to Theater Forces**		Y				
ST 5.4.1	Prepare & Coordinate Theater Strategic, Camp Plans, Operation Plans & Orders	I	Y	G	1-2	1	1
ST 5.4.2	Issue Theater Strategic Operation Plans, Orders & ROE	I	Y	G	1-2	1	1
ST 5.4.3	Synchronize Joint Operations & Subordinate Campaign Plans	I	Y	G	1-2	1	1
ST 5.4.4	Establish, or Participate in, Joint, Combined or Multinational force	I	Y	G	1-2	1	1
ST 5.5	**Employ Theater-Wide Command & Contrtol Warfare (C2W)**	I	Y	Y	1-2	1	1

STRATEGIC THEATER (ST)

ST 6 PROTECTION

	TASK	CAT	CINC	STATUS	MODEL	IOC	FOC
ST 6.1	**Provide Theater Aerospace & Missile Defense**		Y				
ST 6.1.1	Process Theater Aerospace Targets	I		G	1	1	1
ST 6.1.2	Provide Airspace Control Measures	I	Y	G	1	1	1
ST 6.1.3	Provide space Support Requirements	I	Y	G	1	1	1
ST 6.1.4	Provide for Theater Air Defense	I	Y	G	1	1	1
ST 6.1.5	Provide Theater Missile Defense	I	Y	G	1	1	1
ST 6.2	**Provide Protection for Theater Strategic Forces & Means**		Y				
ST 6.2.1	Prepare Strategically Significant Defenses	I		G	1	1	1
ST 6.2.2	Remove Strategically Significant hazards	I		Y	1	1	1
ST 6.2.3	Protect Use of Electromagnetic spectrum	I		Y	1	1	1
ST 6.2.4	Provide Positive ID of Friendly Strategic Forces in Theater	I	Y	Y	1	1	1
ST 6.2.5	Provide security for Theater Forces & Means	I	Y				
ST 6.2.5.1	synchronize Counterreconnaissance Theater-Wide	I		Y	1	1	1
ST 6.2.5.2	Secure & Protect Theater Installations, Facilities, & systems	I		G	1-2	1	1
ST 6.2.5.3	Secure & Protect Theater Air, Land, & Sea LOCs	I		G	1	1	1
ST 6.2.6	Support Escape, Evasion, & Recovery of Forces	I		G	1	1	1
ST 6.2.7	Establish NBC Protection in Theater	I		G	1-2	1	1
ST 6.3	**Employ Theater Operations Security**						
ST 6.3.1	Employ Theater Signal Security (SIGSEC)	I		R		3	2
ST 6.3.2	Employ Concealment Techniques for Theater Forces/facilities	I		Y	1	2	1
ST 6.4	**Conduct Deception in Support of Theater Strategy & Campaigns**						
ST 6.4.1	Protect Details of Theater Strategy & Campaign Plans & Operations	I		G	1-2	1	1
ST 6.4.2	Misinform Adversary Regarding Conduct of Theater Strategy,						
	Campaigns, and Unified Operations	I		R		3	2
ST 6.4.3	Assess Effect of Theater Deception Plan	I		Y	1-2	2	1

STRATEGIC THEATER (ST)

ST 7 FORCES

	TASK	CAT	CINC	STATUS	MODEL	IOC	FOC
ST 7.1	**Recommend Warfighting & Other Requirements & Test**						
	Concepts						
ST 7.1.1	Provide OPLANs for Mob & Deployment Planning & Execution	I		Y	2	2	1
ST 7.1.2	Determine Deployment Requirements	I		Y	2	2	1
ST 7.1.3	Tailor Joint forces for Deployment	I	Y	Y	2	1	1
ST 7.1.4	Determine forces & Cargo to be Deployed or Redeployed	I		G	2	1	1
ST 7.1.5	Determine Theater Warfighting & Other Needs, Solutions & Concepts	I		G	2	1	1
ST 7.1.6	Determine Theater Force Size & Structure Requirements	I		G	2	1	1
ST 7.1.7	Establish Joint Mission Essential Task List (JMETL)	I		R	-	3	2
ST 7.2	**Maintain & Report Readiness of Theater Forces**						
ST 7.2.1	Maintain & Report Status of Resources & Training	I		G	1-2	1	1
ST 7.2.2	Determine & Report Military Capability	I		Y	2	2	1
ST 7.2.3	Conduct Joint After Action Reporting	I		G	1-2	1	1

STRATEGIC THEATER (ST)

ST 8 MAINTAIN RELATIONS

	TASK	CAT	CINC	STATUS	MODEL	IOC	FOC
ST 8.1	**Foster Alliance & Regional Relations & Security Arrangements**		Y				
ST 8.1.1	Enhance Regional Politico-Military Relations	II	Y	G	2	1	1
ST 8.1.2	Promote Regional Security & Interoperability	II	Y	G	1-2	1	1
ST 8.1.3	Develop Headquarters or Organizations for Coalitions	II		G	2	1	1
ST 8.2	**Provide Support to Allies, Regional Governments, International**						
	Organizations or Groups						
ST 8.2.1	Conduct Security Assistance Activities	I	Y	G	1-2	1	1
ST 8.2.2	Conduct Civil Affairs in Theater	I	Y	R	-	1	1
ST 8.2.3	Coordinate Disaster Relief	I	Y	Y	1-2	1	1
ST 8.2.4	Provide Humanitarian Assistance	I		Y	1-2	1	1
ST 8.2.5	Provide nation Assistance Support	I		R	-	3	2
ST 8.2.6	Provide Military Civic Action Assistance	I		R	-	3	2
ST 8.2.7	Assist in Restoration of Order	I		Y	2	2	1
ST 8.2.8	Coordinate Interagency Activities	I	Y	G	1-2	1	1
ST 8.2.9	Support Peace Operations in Theater	I	Y	Y	1-3	1	1
ST 8.2.9.1	Support Multilateral Peace Operations	I		Y	2-3	2	1
ST 8.2.9.2	Support Peacekeeping	I		Y	1-2-3	2	1
ST 8.2.9.3	Conduct Peace Enforcement	I		Y	1-2-3	2	1
ST 8.3	**Obtain support for US Forces & Interests**		Y				
ST 8.3.1	Arrange Stationing for US Forces	I		Y	2	1	1
ST 8.3.2	Establish Bilateral or Multilateral Arrangements	I	Y	Y	2	1	1
ST 8.3.3	Arrange Sustainment Support for Theater Forces	I		G	1	1	1
ST 8.3.4	Obtain Multinational Support Against Nonmilitiary Threats	I	Y	Y	2	1	1
ST 8.4	**Provide Theater Support to Other DoD & Government Agencies**						
ST 8.4.1	Support Counterdrug Operations in Theater	I	Y	G	3	1	1
ST 8.4.2	Assist in Combating Terrorism	I	Y	R	-	1	1
ST 8.4.3	Support Evacuation of Noncombatants from Theater	I	Y	Y	1-2	1	1
ST 8.4.4	Counter Weapon & Technology Proliferation	I		R	-	3	2

OPERATIONAL (OP)

OP 1 MOVING FORCES

	TASK	CAT	CINC	STATUS	MODEL	IOC	FOC
OP 1.1	**Conduct Operational Movement**		Y				
OP1.1.1	Formulate Request for Strategic Deployment to Theater of Operations/JOA	I		Y	2	1	1
OP1.1.2	Conduct Intratheater Deployment & Redeployment of Forces within Theater of Operations/JOA	I		G	2	1	1
OP 1.2	**Conduct Operational Maneuver**						
OP 1.2.1	Transition Joint Forces for Operational Formations	I	Y	G	1-2-3	1	1
OP 1.2.2	Posture Joint Forces for Operational Formations	I	Y	G	1-2-3	1	1
OP 1.2.3	Concentrate Forces in Theater of Operations/JOA	I		G	1-2-3	1	1
OP 1.2.4	Conduct Operations in Depth		Y				
OP 1.2.4.1	Plan & Execute Show of force	I		G	1-2-3	1	1
OP 1.2.4.2	Plan & Execute Demonstration	I		G	1-2-3	1	1
OP 1.2.4.3	Conduct Forcible Entry: Airborne, Amphibious & Air Assault	I	Y	G	1-2-3	1	1
OP 1.2.4.4	Seize, Hold, & Expand Lodgment	I	Y	G	1-2-3	1	1
OP 1.3	**Provide Operational Mobility**						
OP 1.3.1	Overcome Operationally Significant Barriers, Obstacles & Mines	I	Y	G	1-2-3	1	1
OP 1.3.2	Enhance Movement of Operational Forces	I		G	1-3	1	1
OP 1.4	**Provide Operational Countermobility**						
OP 1.4.1	Employ Operational System of Obstacles	I	Y	G	1-2-3	1	1
OP 1.4.2	Plan & Execute Quarantine/Embargo	I		G	1	1	1
OP 1.4.3	Plan & Execute Blockade	I		G	1-2-3	1	1
OP 1.5	**Control or Dominate Operationally Significant Area**		Y				
OP 1.5.1	Control Operationally Significant land Area	I	Y	G	1-2-3	1	1
OP 1.5.2	Gain & Maintain Maritime superiority in Theater of Operations/JOA	I	Y	G	1-2	1	1
OP 1.5.3	Gain & Maintain Air Superiority in Theater of Operations/JOA	I	Y	G	1-2	1	1
OP 1.5.4	Isolate Theater of Operations/JOA	I		G	1-2	1	1
OP 1.5.5	Assist Host-Nation in Populace & Resource Control	I	Y	Y	1-2	1	1

OPERATIONAL (OP)

OP 2 INTELLIGENCE

	TASK	CAT	CINC	STATU	MODEL	IOC	FOC
OP 2.1	**ID & Prioritize Operational Intelligence Requirements**						
OP 2.1.1	Establish Commander's Critical Intelligence Requirements	I	Y	Y	1	1	1
OP 2.1.2	Prepare & Issue EEI	I		Y	1	2	1
OP 2.1.3	Develop Intelligence Collection Plans	I	Y	Y	1	1	1
OP 2.1.4	Issue Request for Collection & Production	I	Y	Y	1	1	1
OP 2.1.5	Integrate Operational Counterintelligence Requirements	I					
OP 2.2	**Collect Operational Information**		Y				
OP 2.2.1	Collect Information on Enemy Operational Situation & Hazards	I	Y	Y	1-2	1	1
OP 2.2.2	Collect Information on Operational Targets	I	Y	Y	1-2	1	1
OP 2.2.3	Provide Operational Reconnaissance & surveillance	I	Y	Y	1-2	1	1
OP 2.3	**Process Operational Information**						
OP 2.3.1	Evaluate Operational Threat (& Friendly) Information	I	Y	Y	2	1	1
OP 2.3.2	Analyze & Evaluate Operational Areas	I	Y	Y	2	1	1
OP 2.3.3	Integrate Operational Intelligence		Y				
OP 2.3.3.1	Develop Enemy Operational Intentions	I		Y	1-2-3	1	1
OP 2.3.3.2	Develop Operational Target Information	I		G	1	1	1
OP 2.3.3.3	Identify Enemy Vulnerabilities	I	Y	Y	2	1	1
OP 2.3.4	Develop Indications and Warning	I	Y	Y	1	1	1
OP 2.4	**Produce Operational Intelligence Reports**	I	Y	Y	1-2	1	1
OP 2.5	**Disseminate Operational Intelligence Reports**	I	Y	Y	1-2	1	1

OPERATIONAL (OP)

OP 3 FIREPOWER

	TASK	CAT	CINC	STATU	MODEL	IOC	FOC
OP 3.1	**Conduct Joint Force Targeting**		Y				
OP 3.1.1	Establish Joint Force Targeting Strategy	I	Y	G	1-2	1	1
OP 3.1.2	Allocate Joint/Multinational Operational Firepower Resources	I	Y	G	1-2	1	1
OP 3.1.3	Select Operational Targets for Attack	I	Y	G	1-2	1	1
OP 3.1.4	Prioritize High Payoff Targets		Y	G	1-2	1	1
OP 3.1.5	Publish Tasking Order for Employment of Operational Firepower	I	Y	G	1-2	1	1
OP 3.1.6	Conduct Operational combat Assessment		Y				
OP 3.1.6.1	Assess Battle Damage on Operational Targets	I		G	2	1	1
OP 3.1.6.2	Assess Munitions Effects on Operational Targets	I		G	2	1	1
OP 3.1.6.3	Assess Reattack Requirements	I		G	2	1	1
OP 3.1.7	Develop Fire Support Coordination Measures	I	Y	G	1-2	1	1
OP 3.2	**Attack Operational Targets**		Y				
OP 3.2.1	Attack Enemy Operational Land/Maritime Targets	I	Y	G	1-2	1	1
OP3.2.2	Conduct Nonlethal Attack on Operational Targets		Y				
OP 3.2.2.1	Employ PSYOPS in Theater of Operations/JOA	I	Y	Y	1-2	1	1
OP 3.2.2.2	Employ Electronic Attack (EA) in Theater of Operations/JOA	I	Y	Y	1-2	1	1
OP 3.2.3	Attack Enemy Aircraft & Missiles (Offensive Counter Air)	I	Y	G	1-2	1	1
OP 3.2.4	Suppress Enemy Air Defenses	I	Y	G	1-2	1	1
OP 3.2.5	Interdict Enemy Operational Forces/Targets		Y				
OP 3.2.5.1	Conduct Air Interdiction of Operational Forces/Targets	I		G	1-2	1	1
OP 3.2.5.2	Conduct surface/Subsurface Firepower Interdiction of Operational Forces/Targets	I		G	1-2	1	1
OP 3.2.5.3	Conduct Special Operations Interdiction of Operational Forces/Targets	I		G	2-3	1	1
OP 3.2.6	Provide Firepower in Support of Operational Maneuver	I		G	2-3	1	1
OP 3.2.7	Integrate/Synchronize Operational Firepower	I	Y	G	2-3	1	1

OPERATIONAL (OP)

OP 4 SUSTAINABILITY

	TASK	CAT	CINC	STATU	MODEL	IOC	FOC
OP 4.1	Coordinate Supply of Arms, Ammunition, and Equipment in		Y				
	Theater of Operations/JOA	I		G	2	1	1
OP 4.2	Synchronize Supply of Fuel in Theater of Operations/JOA	I	Y	G	2	1	1
OP 4.3	Provide for Maintenance of Equipment in Theater of						
	Operations/JOA	I		Y	1-2	2	1
OP 4.4	Coordinate Manning of Forces in Theater of Operations/JOA						
OP 4.4.1	Provide Field Services	I		Y	1	2	1
OP 4.4.2	Provide Personnel Services	I		Y	1	2	1
OP 4.4.3	Provide Health Services in Theater of Operations/JOA	I	Y	Y	1	1	1
OP 4.4.4	Reconstitute Forces	I		Y	1	2	1
OP 4.4.5	Train Joint Forces & Personnel	I		R	-	3	2
OP 4.4.6	Coordinate Theater Of Operations Reception	I	Y	Y	1	1	1
OP 4.5	Distribute Supplies/Movement Services for Campaign &						
	Theater of Operations/JOA		Y				
OP 4.5.1	Provide for Movement Services in Theater of Operations/JOA	I	Y	Y	1-2	1	1
OP 4.5.2	Establish Priorities & Supply Operational Forces	I	Y	Y	1-2	1	1
OP4.5.3	Establish Evacuation Policy Procedures for Theater of Operations/JOA	I	Y	G	2	1	1
OP 4.6	Maintain Sustainment Bases						
OP 4.6.1	Recommend Number and Location of Sustaining Bases in Theater of						
	Operations/JOA	I		Y	1-2	2	1
OP 4.6.2	Provide Civil-Military Engineering	I	Y	Y	1	1	1
OP 4.6.3	Expand Capacity of PODs & Allocate space ;in the Theater of						
	Operations/JOA	I	Y	Y	1-2	1	1
OP 4.6.4	Provide Law Enforcement & Prisoner Control	I		R	-	3	2
OP 4.7	Provide Politico-Military Support to Other Nations, Groups,						
	and Government Agencies		Y				
OP 4.7.1	Provide Security Assistance in Theater of Operations/JOA	I		Y	2	1	1
OP 4.7.2	Coordinate & Provide CMO Support in Theater of Operations/JOA	I	Y	R	-	1	1
OP 4.7.3	Provide Support to DoD & Other Government Agencies	I	Y	R	-	1	1
OP 4.7.4	Plan & Transition to Civil Administration	I		R	-	1	1
OP 4.7.5	Coordinate Politico-Military support	I	Y	R	-	1	1

OPERATIONAL (OP)

OP 5 COMMAND CONTROL

	TASK	CAT	CINC	STATU	MODEL	IOC	FOC
OP 5.1	**Acquire & Communicate Operational level Information**						
	and Maintain Status		Y				
OP 5.1.1	Communicate Operational Information	I	Y	Y	1-2	1	1
OP 5.1.2	Manage Means of Communicating Operational Information	I	Y	Y	1-2	1	1
OP 5.1.3	Maintain Operational Information & Force Status	I	Y	G	2	1	1
OP 5.1.4	Monitor Strategic Situation	I	Y	G	2	1	1
OP 5.1.5	Provide Public Affairs in Theater of Operations/JOA	I	Y	Y	1	1	1
OP 5.1.6	Supervise Communications Security (COMSEC)	I		R	-	1	1
OP 5.2	**Assess Operational Situation**		Y				
OP 5.2.1	Review Current Situation (Project Branches)	I	Y	Y	2-3	1	1
OP 5.2.2	Formulate Crisis Assessment	I	Y	Y	3	1	1
OP 5.2.3	Project Future Campaigns & Major Operations	I	Y	Y	2-3	1	1
OP 5.3	**Prepare Plans & Orders**		Y				
OP 5.3.1	Conduct Operational Mission Analysis	I	Y	G	3	1	1
OP 5.3.2	Issue Planning Guidance	I	Y	R	-	1	1
OP 5.3.3	Determine Operational End State	I	Y	R	-	1	1
OP 5.3.4	Develop Courses of Action/Prepare Staff Estimates	I, II	Y	Y	3	1	1
OP 5.3.5	Analyze Courses of Action	I	Y	G	3	1	1
OP 5.3.6	Compare Courses of Action	I	Y	Y	2-3	1	1
OP 5.3.7	Select or Modify Course of Action	I	Y	Y	3	1	1
OP 5.3.8	Issue Commander's Estimate	I	Y	R	-	1	1
OP 5.3.9	Prepare Campaign or Major Operations & Related Plans & Orders	I	Y	R	-	1	1
OP 5.4	**Direct & Lead Subordinate Operational Forces**		Y				
OP 5.4.1	Approve Plans & Orders	I	Y	Y	1	1	1
OP 5.4.2	Issue Plans & Orders	I	Y	G	1	1	1
OP 5.4.3	Issue Rules of Engagement	I	Y	G	1-2	1	1
OP 5.4.4	Synchronize/Integrate Operations	I	Y	G	1-2	1	1
OP 5.4.5	Coordinate/Integrate Components	I	Y	Y	1	1	1
						1	1
OP 5.5	**Establish a Joint Force**		Y			1	1
OP 5.5.1	Develop a Joint Force Command & Control Structure	I	Y	G	1-2	1	1
OP 5.5.2	Develop Joint Force Liaison Structure	I	Y	G	1-2	1	1
OP 5.5.3	Augment Joint Force Staff	I	Y	G	1	1	1
OP 5.5.4	Deploy Joint Force Headquarters Advance Elements	I		G	1-2	1	1
OP 5.5.5	Establish Command Transition Criteria & Procedures	I	Y	G	1	1	1
OP 5.6	**Employ Operational Command & Control Warfare (C2W)**		Y				
OP 5.6.1	Plan & Integrate Operational C2 W	I	Y	Y	2	1	1
OP 5.6.2	Control C2W Operations	I	Y	Y	1-2	1	1
OP 5.7	**Coordinate & Integrate Joint/Multinational & Interagency**		Y				
	Support						
OP 5.7.1	Ascertain National or Agency Agenda	I	Y	R	-	1	1
OP 5.7.2	Determine national/Agency Capabilities & Limitations	I	Y	R	-	1	1
OP 5.7.3	Develop Multinational Intelligence/Information Sharing Structure	I	Y	Y	2	1	1
OP 5.7.4	Coordinate Plans with Non-DoD Organizations	I	Y	R	-	1	1

OPERATIONAL (OP)

OP 6 SURVIVABILITY

	TASK	CAT	CINC	STATU	MODEL	IOC	FOC
OP 6.1	**Provide Operational Aerospace & Missile Defense**		Y				
OP 6.1.1	Process/Allocate Operational Aerospace Targets	I	Y	G	1-2	1	1
OP 6.1.2	Integrate Joint/Multinational Operational Aerospace Defense	I	Y	G	1-2	1	1
OP 6.1.3	Provide Airspace Control		Y				
OP 6.1.3.1	Employ Positive Control Measures	I		Y	1-2	1	1
OP 6.1.3.2	Employ Procedural /Control Measures	I		R	-	1	1
OP 6.1.4	Counter Enemy Air Attack in Theater of Operations/JOA	I	Y	G	1-2	1	1
OP 6.1.5	Conduct Operational Area Missile Defense	I	Y	G	1	1	1
OP 6.2	**Provide Protection for Operational Forces, Means & Noncombatants**		Y				
OP 6.2.1	Prepare Operationally Significant Defenses	I		G	1	1	1
OP 6.2.2	Remove Operationally Significant Hazards	I	Y	G	1	1	1
OP 6.2.3	Protect Use of Electromagnetic Spectrum in Theater of Operations/JOA	I	Y	R	-	1	1
OP 6.2.4	Provide Positive ID of Friendly Operational forces	I	Y	Y	1-2	1	1
OP 6.2.5	Conduct Evacuation of Noncombatants from Theater of Operations/JOA	I	Y	Y	1-2-3	1	1
OP 6.2.6	Establish Disaster Control Measures	I		R	-	1	1
OP 6.2.7	Establish NBC Protection in Theater of Operations/JOA	I		Y	1-3	1	1
OP 6.2.8	Coordinate Survival, Evasion, Resistance, & Escape Support	I		R	-	1	1
OP 6.3	**Employ Operations Security in Theater of Operations/JOA**		Y				
OP 6.3.1	Determine Essential Elements of Friendly Information (EEFI)	I	Y	Y	1	1	1
OP 6.3.2	Employ Signal Security for Operational Forces	I	Y	R	-	1	1
OP 6.3.3	Avoid Operational Patterns	I		Y	1	1	1
OP 6.3.4	Assess the Effect of Operations Security in Theater of Operations/JOA	I		R	-	1	1
OP 6.4	**Conduct Deception in Support of Sub Campaigns & Major Operations**		Y				
OP 6.4.1	Develop Operation Deception Plan	I	Y	Y	1	1	1
OP 6.4.2	Conduct Operational Deception	I	Y	Y	1-2	1	1
OP 6.4.3	Assess Effect of Operational Deception Plan	I	Y	R	-	1	1
OP 6.5	**Provide Security for Operational Forces & Means**						
OP 6.5.1	Provide Counterreconnaissance in Theater of Operations/JOA	I	Y	R	-	1	1
OP 6.5.2	Protect & Secure Flanks, Rear Areas, & COOMZ in Theater of Operations/JOA	I	Y	G	1-2	1	1
OP 6.5.3	Protect/Secure Operationally Critical Installations, Facilities, & Systems	I		G	1-2	1	1
OP 6.5.4	Protect/Secure Air, Land, & Sea LOCs in Theater of Operations/JOA	I	Y	G	1-2	1	1
OP 6.5.5	Integrate Host-Nation Security Forces & Means	I		G	2	1	1

TACTICAL (TA)

TA 1 MOVING FORCES

	TASK	CAT	CINC	STATUS	MODEL	IOC	FOC
TA 1.1	**Position/Reposition Tactical Forces**		Y				
TA 1.1.1	Prepare Forces for Movement	I		G	1	1	1
TA 1.1.2	Move Forces	I		G	1-2-3	1	1
TA 1.1.3	Close into Tactical Positions	I		G	1-3	1	1
TA 1.2	**Negotiate Tactical Area of Operations**	I	Y	G	1-3	1	1
TA 1.3	**Navigate**	I	Y	G	1	1	1
TA 1.4	**Control or Dominate Combat Area**		Y				
TA 1.4.1	Control or Dominate Combat Area Through Fires or Fires Potential	I		G	1-2-3	1	1
TA 1.4.2	Occupy Combat Area	I		G	1-2-3	1	1
TA 1.5	**Coordinate Maneuver and Integrate with Firepower**	I	Y	G	1-3	1	1

TACTICAL (TA)

TA 2 INTELLIGENCE

	TASK	CAT	CINC	STATUS	MODEL	IOC	FOC
TA 2.1	**Develop Tactical Intelligence Requirements**	I	Y	G	1	1	1
TA 2.2	**Collect Information**		Y				
TA 2.2.1	Collect Information on Situation	I		Y	1-2	1	1
TA 2.2.2	Collect Target Information	I		G	1	1	1
TA 2.2.3	Perform Tactical Reconnaissance and Surveillance	I		G	1	1	1
TA 2.3	**Process Information**		Y				
TA 2.3.1	Evaluate Threat Information	I		Y	1-2	1	1
TA 2.3.2	Evaluate Physical Environment Information	I		Y	1-2	1	1
TA 2.3.3	Evaluate Social/Political/Economic/Health Environment	I		R	-	1	1
TA 2.3.4	Integrate Intelligence Information	I		Y	1-2-3	1	1
TA 2.4	**Prepare and Disseminate Intelligence Reports**		Y				
TA 2.4.1	Prepare Intelligence Reports and Estimates	I		G	1	1	1
TA 2.4.2	Convey Intelligence	I		G	1	1	1

TACTICAL (TA)

TA 3 FIREPOWER

	TASK	CAT	CINC	STATUS	MODEL	IOC	FOC
TA 3.1	**Process Targets**		Y				
TA 3.1.1	Select Target to Attack	I		G	1-2-3	1	1
TA 3.1.2	Select Fire Attack System	I		G	1-2-3	1	1
TA 3.1.3	Develop Order to Fire	I		G	1-2-3	1	1
TA 3.1.4	Conduct Tactical Combat Assessment	I		G	1-2-3	1	1
TA 3.2	**Engage Targets**		Y				
TA 3.2.1	Conduct Lethal Engagement	I					
TA 3.2.1.1	Conduct Fire support/Close Air Support	I		G	1-2-3	1	1
TA 3.2.1.2	Conduct Strike, Surface, Subsurface, Air Defense/Antiair Attack	I		G	1-2-3	1	1
TA 3.2.1.3	Adjust/Illuminate Targets	I		Y	1-2-3	1	1
TA 3.2.1.4	Request Attack	I		G	1-2-3	1	1
TA 3.2.2	Conduct Nonlethal Engagement	I		Y	1-2-3	1	1
TA 3.3	**Integrate Tactical Fires**	I	Y	G	1	1	1

TACTICAL (TA)

TA 4 SUSTAINABILITY

	TASK	CAT	CINC	STATUS	MODEL	IOC	FOC
TA 4.1	**Arm**	I	Y	G	1-2	1	1
TA 4.2	**Fuel**	I	Y	G	1-2	1	1
TA 4.3	**Fix/Maintain Equipment**	I	Y	G	1	1	1
TA 4.4	**Man the Force**		Y				
TA 4.4.1	Distribute Support and Personnel	I		G	1	1	1
TA 4.4.2	Perform Field Services	I		G	1	1	1
TA 4.4.3	Perform Personnel Service Support						
TA 4.4.3.1	Perform Personnel Administration Services	I		G	1	1	1
TA 4.4.3.2	Perform Finance Services	I		R	-	1	1
TA 4.4.3.3	Perform Resource Management	I		R	-	1	1
TA 4.4.3.4	Perform Religious Ministry Support Activities	I		R	-	1	1
TA 4.4.3.5	Perform Legal Services	I		R	-	1	1
TA 4.4.4	Perform Health Services	I		R	-	1	1
TA 4.4.5	Train Forces/Personnel	I		Y	2	1	1
TA 4.5	**Distribute Supplies and Provide Transport Services**		Y				
TA 4.5.1	Perform Transport Services	I		G	1-2	1	1
TA 4.5.2	Supply the Force	I		G	1-2	1	1
TA 4.6	**Perform Civil Military Engineering support**		Y				
TA 4.6.1	Perform Rear Area Restoration	I		G	1	1	1
TA 4.6.2	Perform LOC Sustainment	I		G	1	1	1
TA 4.6.3	Perform Engineer Construction Services	I		G	1	1	1
TA 4.6.4	Obtain Engineer Construction Material	I		G	1	1	1
TA 4.6.5	Supply Mobile electric Power	I		R	-	1	1
TA 4.7	**Conduct Military Police Support**		Y				
TA 4.7.1	Manage Enemy Prisoners of War	I		Y	1-3	1	1
TA 4.7.2	Maintain Law and Order	I		Y	1-3	1	1
TA 4.8	**Conduct Civil Affairs in Area**	I	Y	R	-	1	1

TACTICAL (TA)

TA 5 COMMAND CONTROL

	TASK	CAT	CINC	STATUS	MODEL	IOC	FOC
TA 5.1	**Acquire and Communicate Information & Maintain Status**		Y				
TA 5.1.1	Communicate Information	I		Y	1-2	1	1
TA 5.1.2	Manage Means of Communicating Information	I		R		1	1
TA 5.1.3	Maintain Information and Force Status	I		Y	1-2	1	1
TA 5.2	**Assess Situation**		Y				
TA 5.2.1	Analyze Mission and Current Situation	I		G	1	1	1
TA 5.2.2	Project Future Requirements	I		G	1	1	1
TA 5.2.3	Decide on Need for Action or Change	I		G	1	1	1
TA 5.3	**Determine Actions**		Y				
TA 5.3.1	Issue Planning Guidance	I		G	1	1	1
TA 5.3.2	Develop Courses of Action	I		G	1-3	1	1
TA 5.3.3	Analyze and Compare Courses of Action	I		G	3	1	1
TA 5.3.4	Select or Modify Course of Action	I		Y	2	1	1
TA 5.4	**Direct and Lead Subordinate Forces**		Y				
TA 5.4.1	Prepare Plans or Orders	I		G	1	1	1
TA 5.4.2	Issue Orders	I		G	1	1	1
TA 5.4.3	Provide Public Affairs services	I		Y	1		
TA 5.4.4	Maintain command Presence	I		R	-	1	1
TA 5.4.5	Maintain Unit Discipline	I		R	-	1	1
TA 5.4.6	Synchronize Tactical Operations	I		G	1-2	1	1
TA 5.5	**Employ Tactical C2 W**	I	Y	Y	1	1	1

TACTICAL (TA)

TA 6 SURVIVABILITY

	TASK	CAT	CINC	STATUS	MODEL	IOC	FOC
TA 6.1	**Maintain Mobility**		Y				
TA 6.1.1	Overcome Barriers, Obstacles, and Mines	I		G	1-3	1	1
TA 6.1.2	Enhance Movement	I		G	1-3	1	1
TA 6.2	**Conduct Countermobility**		Y				
TA 6.2.1	Select/Secure Location of Barriers, Obstacles, and Mines	I		G	1-3	1	1
TA 6.2.2	Emplace Barriers, Obstacles, and Mines	I		G	1-3	1	1
TA 6.2.3	Mark Barriers, Obstacles, and Mines	I		G	1	1	1
TA 6.2.4	Detonate Mines/Explosives	I		G	1-3	1	1
TA 6.3	**Enhance Survivability**		Y				
TA 6.3.1	Protect Against Combat Area Hazards	I					
TA 6.3.1.1	Protect Individuals and Systems	I		Y	1	1	1
TA 6.3.1.2	Remove Battlespace Hazards			G	1	1	1
TA 6.3.2	Employ Operations Security	I					
TA 6.3.2.1	Employ Signals Security	I		R	-	1	1
TA 6.3.2.2	Employ Concealment Techniques	I		Y	1-3	1	1
TA 6.3.3	Conduct Deception in Support of Tactical Operations	I		Y	1	1	1
TA 6.3.4	Maintain Counterreconnaissance, Security, and Readiness	I		G	1	1	1
TA 6.3.5	Evacuate Noncombatants from Area	I		G	1	1	1